



Muslim young adults' financial strain and financial stress during the COVID-19 pandemic: The moderating role of religiosity

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ABSTRACT

The COVID-19 pandemic affected everyone's lives and general well-being worldwide, including young adults. Young adulthood is marked by a shift in various social areas including acquiring financial independence. As the pandemic was an exceptional scenario in all nations, there is a research gap in analysing how it would affect financial experiences of young adults, particularly the Muslim young adults. These individuals may face financial stress as a result of the COVID-19 pandemic due to their high level of financial strain. Furthermore, little is still known about the role that religiosity may play in the relationship between the financial strain and financial stress, notably during the pandemic. The objectives of this study were to examine the level of financial strain and financial stress of Muslim young adults, assess the effect of financial strain on financial stress of Muslim young adults and investigate the moderating effect of religiosity on the relationship between Muslim young adults' financial strain and financial stress during the COVID-19 pandemic. A survey of 230 Muslim young adults was conducted in Malaysia. Results showed that thirty percent of Muslim young adults fell under high level of financial strain while majority of them fell under high level of financial stress. Additionally, financial strain had a significant positive effect on the financial stress of Muslim young adults. This means that the more financially strained, the more Muslim young adults experienced financial stress during the COVID-19 pandemic. Religiosity, however, did not moderate the relationship between financial strain and financial stress. These results highlighted the significance of comprehending the level of financial strain and financial stress experienced by Muslim young adults during the COVID-19 pandemic. The results provided relevant parties insights in developing strategies for Muslim young adults to manage financial strain and financial stress to reduce the negative effect of the COVID-19 pandemic.

1. Introduction

The term "financial strain" and "financial stress" are used interchangeably in literature [1]. However, some scholars had reported the difference between these two concepts [e.g. 12] This study focuses on the later perspective because to understand the two concepts it is important to gain an in-depth comprehension regarding issues related to the concepts. In simplest terms, scholars [e.g., 21; 12]

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referred financial stress as an individual's feeling about his current financial situation, whereas financial strain referred to the degree at which an individual experience financial difficulty. Specifically, financial stress can be defined as the overwhelming pressure and complexity of managing general financial obligations due to lack of financial resources [2]. On the other hand, according to Ettman et al. (2023) [3] financial strain refers to "the ability of people to cover their expenses with assets available, whether measured as the perception of strain or reactions to their inability to pay for needs." According to Caplan and Schooler (2007) [4], financial strain (*i.e.*, financial difficulties) led to financial stress (*i.e.*, an emotional response experienced in response to financial strain). Similarly, Danahy (2022) [5] revealed that exposure to financial-related stressors (in terms of holding student loan debt and lack emergency savings) are strongly associated with college students' financial stress levels.

Globally, the COVID-19 pandemic had impacted everyone's lives and well-being, with effects shown in every area from job and mental health to education and finance. The COVID-19 pandemic has caused financial difficulty for numerous populations around the world. Young people are among the most affected by the economic crisis as a result of the COVID-19 pandemic [6]. Similarly, Graupensperger et al. (2022) [7] stated that life disruptions associated with the COVID-19 pandemic, including financial instability, had disproportionately affected young adults. The Organisation for Economic Co-operation and Development (OECD) conducted a survey on Risks That Matter in 2020 pertaining to young people's concerns during COVID-19 pandemic [6]. The report stated that 51 % of the young adults (age within 18–29 year) indicated that either they or a household member have experienced job-related disruptions since the start of the COVID-19 pandemic in the form of a job loss, the use of a job retention scheme, a reduction in working hours, and/or a pay cut. Moreover, the report revealed that more than one in three young people experienced financial difficulties since the pandemic began.

In the United States (U.S.), for instance, Du et al. (2021) [8] reported that the COVID-19 pandemic had worsened financial stress for higher education students. Moreover, Schoon and Henseke (2022) [9] claimed that the COVID-19 pandemic disproportionately affected young people aged 16–25 years. Young adulthood (ages 18–30 years) is a developmental period characterised by transitioning social roles in many life domains, including in establishing financial independence [10]. In Malaysia, Credit Counselling and Debt Management Agency (AKPK) conducted a survey on "Money and Mental Well-Being" in 2020 [11]. The results of the survey reported that financial stress among working adults in Malaysia has increased by 35 % since the COVID-19 pandemic started in 2020. AKPK (2023) [11] indicated that the financial stress affects the Malaysian working adults' mental health and job performance. The survey found that high cost of living in Malaysia, followed by low income and poor savings, is the most frequent cause of financial stress. Further, according to AKPK (2023) [11] young workers under-29-year-old were more stressed due to low salaries and overspending.

Since the COVID-19 pandemic was an unusual scenario and did not affect all countries in the past, there is a research gap in addressing how this incident would affect Muslim young adults' financial experiences. Therefore, it is crucial to comprehend the level of financial stress experienced by Muslim young adults because this stress is associated to a number of adverse outcomes, such as poor health [12]. This study examined how COVID-19-related stressor, which is financial strain relates to Muslim young adults' financial stress. The COVID-19 pandemic could cause them to experience severe financial hardship because of their high level of financial strain. To make sure they are not forgotten, the financial difficulties they encountered must be addressed.

Malaysians are characterised by religious pluralism, with Islam being the state religion. In 2020, the Department of Statistics Malaysia (DOSM) reported that Muslim group presented 20.6 million (63.58 %) from the total of 32.4 million population [13]. Young adults represent one of the country's most valuable assets as they form an essential foundation for the country's future development [14]. Nevertheless, no statistics is available for the young adults group. However, the 15–64 year age group represents 69.7 % of the population. Yet, there is still little knowledge of the possible influence of religiosity on the association between financial strain and financial stress, particularly during the COVID-19 pandemic. This study explored the role of religiosity in reducing the Muslim young adults' financial stress during the COVID-19 pandemic in the context of financial strain, as it is not adequately addressed in literature.

The examination of financial strain influence on financial stress raises important theoretical issue. Very limited study investigated financial stress from the perspective of attribution theory. Attribution theory [15] discusses how individual explains the reasons behind other people's or their own behaviour, which is impacted by internal factors or external factors. Specifically, from the view of attribution theory, the internal factors of Muslim young adults—financial stress and religiosity—were attributed as causes of financial stress. Accordingly, the following research questions were addressed: (1) What are the Muslim young adults' level of financial strain and financial stress during the COVID-19 pandemic? (2) How does the financial strain influence financial stress of Muslim young adults during the COVID-19 pandemic?, and (3) How does religiosity moderate the relationship between Muslim young adults' financial strain and financial stress during the COVID-19 pandemic? This study formulated three research objectives to answer these questions: (1) to examine the Muslim young adults' level of financial strain and financial stress during the COVID-19 pandemic, (2) to assess the effect of Muslim young adults' financial strain on financial stress during the COVID-19 pandemic, and (3) to investigate the moderating effect of religiosity on the relationship between Muslim young adults' financial strain and financial stress during the COVID-19 pandemic.

2. Literature review

2.1. Financial stress versus young adults

Ismail and Zaki (2019) [16] stated that financial stress was a condition whereby individuals were facing difficulties in meeting financial obligations due to shortage of money. In literature there are limited studies which explored financial stress issues faced by young adults. According to Farrer et al. (2016) [17] financial stress is a major contributor to university students' feelings of anxiety. The COVID-19 pandemic had increased financial stress on many students (undergraduates and graduates) in the U.S [8] and this

pandemic had worsened financial stress in the population [18]. Loh et al. (2021) [19] reported that the young adults in Malaysia were experiencing financial stress, which can result in a poor level of subjective financial well-being. In this regard it is crucial for a person to develop strategies, such as building an emergency fund or a budget, which allow them to manage their financial stress. According to Loh et al. (2021) [19], women were found to have greater financial stress because they worried about not having enough money set aside for family expenses, especially as they were usually responsible for making financial decisions for the household in comparison to males. Prakash et al. (2022) [20] discovered that financial stress had a significant negative impact on the young workers' financial well-being. The association between financial literacy and financial well-being was also found to be mediated by financial stress. Prakash et al. (2022) [20] reported variables that contribute to financial stress include the absence of healthy financial behaviour, job losses, unsteady income, a decline in purchasing power, and growing living expenses. Based on literature review, and to the authors' knowledge no study had considered Muslim young adults' financial stress-related issues, particularly during the COVID-19 pandemic. This study is therefore timely in providing information on the subject so that appropriate actions can be taken to address the issue.

2.2. Financial strain versus young adults

"Financial strain is the unpleasant feeling that individuals might experience when they are unable to meet financial demands, cannot afford the necessities of life and have insufficient funds to make ends meet, and thus forcing them to reduce their standard of living, borrow to pay for monthly expenses or be even unable to pay for them" [1]. Rahman and Ahmad Shafiai (2021) [21] revealed a negative relationship between financial problems towards financial well-being amongst young employees in Malaysia. Numerous nations' economies had been impacted by the COVID-19 pandemic. According to Mohamad Fazli et al. (2018) [1] economic volatility might affect an individual's financial situation, including the younger generation. Meanwhile, Ruff and Linville (2021) [22] reported that young adults were concerned about their financial strain in response to the COVID-19 pandemic which included: a) No familial financial support to rely upon, (b) Housing insecurity/homelessness; and (c) Decreased access to resources.

In a different perspective on the issue of young adults' financial strain, Chatterjee et al. (2021) [23] found that dissatisfaction with current non-marital relationship would mediate the association between financial strain and psychological well-being of emerging adults. On the other hand, Falconier and Jackson (2020) [24] demonstrated that financial strain had negative effects on relationship stability and satisfaction as well as on one's physical and mental health. Eisenberg et al. (2007) [25] reported that university students from lower socioeconomic class households, who were facing more financial strain than higher socioeconomic status households, had higher rates of mental health concerns and lower levels of mental well-being. Additionally, Kramer et al. (2019) [26] stated that financial strain was recognised as a solid indicator of psychological and physical well-being, which was particularly pertinent to low-income households. Benson-Eggleton (2019) [27] revealed that university students in the United Kingdom who faced financial hardship had lower levels of mental well-being. Defeyer et al. (2021) [28] indicated that student who facing financial pressures were likely to experience decrease mental well-being.

As noted above, limited studies had investigated Muslim young adults' issue of financial strain. As such, this study is essential to provide insights on the matter which requires serious attention to ensure proper actions can be done to address the problem.

2.3. Financial strain, stress and young adults

Financial stress is frequently characterised as symptom of physical or mental illness that result from being unable to satisfy basic necessities, such as having trouble paying bills, and money left over at the end of month. [e.g. 2; 83]. Stein et al. (2013) [29] found a direct relationship between perceived economic pressure and psychological well-being for young adults who experienced higher levels of depressed mood and anxiety. Financial difficulties such as increasing amount of debt and excessive spending can cause financial stress [19]. Financial satisfaction, student loans, and gender were discovered to be associated to college students' financial anxiety [30]. The Employee Financial Well-being Survey 2021 by PwC reported that financial health during the pandemic was the main contributing factor to stress levels [31]. Furthermore, PwC (2021) [31] revealed that financial illiteracy, excessive borrowings (debt) and poor savings contributed to the financial stress amongst individuals.

Georgakopoulos (2020) [32] revealed that financial strain was one of the causes of mental health disorders among Australian students, and the impact of COVID-19 pandemic was the key stressor. According to the study, students who were satisfied with their financial situation displayed much lower levels of depression than those who were not. Kujawa et al. (2020) [33] developed a measure to assess events related to the COVID-19 pandemic and examined the U.S. emerging adults' (aged 18–25 years old) experiences of stress, depression, and anxiety. Amongst others, the result found that financial strain increased rates of depression and anxiety. Brookes et al. (2020) [34] revealed the psychological impact of quarantine on university students included post-traumatic stress symptom and the stressor embraces longer quarantine duration and financial loss. Liu et al. (2022) [35] examined whether the concerns regarding contracting COVID-19 and finances may be risks to U.S. young adults' mental health. They revealed that in May 2020 financial strain predicted depressive symptoms amongst U.S. 18-25-year olds; but there was no link with anxiety. Graupensperger et al. (2022) [7] discovered that financial-related stressor was significantly associated with increased U.S. young adults' symptoms of anxiety. Schoon and Henseke (2022) [9] focused on socio-economic status to the U.S. young people's (age 16–25 years) mental health. The study used financial strain to indicate the young person's experience of stress. The study discovered that socio-economic status influences were partially mediated via financial strain and psychosocial resource factors.

Based on literature review, to the authors' knowledge no study had considered Muslim young adults' financial stress-related issues, particularly during the COVID-19 pandemic. Therefore, this study is timely to offer insight pertaining to the subject so that appropriate actions can be taken to solve the issue.

2.4. Religiosity versus young adults

According to Eid and El-Gohary (2015) [36] religiosity is “how far the knowledge, beliefs, worship and implementation rules and appreciation of religion embraced”. Zamani-Farahani and Musa (2012) [18] advocated that religiosity refers to people’s value and attitude in doing their activities based on their religion concept. To be religious, one must practise the religion earnestly and genuinely rather than idly and superficially [37]. Religiosity is viewed as a social force which influences human behaviour [e.g. 27]. For a Muslim, the pattern of displayed behaviour must be based on the guide of Quran and Hadith. In this study the Islamic religiosity was taken from two dimensions, which were Islamic beliefs and Islamic practices [38]. Islamic beliefs refer to people’s beliefs on Islamic values, while Islamic practices relate to people’s attitude and behaviour based on their Islamic values [39].

Role of religiosity had been widely investigated in the context of various issues for example work performance (e.g. 7) and mental health (e.g. 57). Specifically, prior research on religiosity and young adults was found in several contexts as well, such as the research conducted by Nadeem et al. (2019) [40] who found that religiosity significantly illuminated the variances in developing internet addiction among the Muslim college adult. In addition, Stuart and Ward (2018) [41] found that while higher levels of religiosity were often positive for youth outcomes, they also carried a lower risk of mental health issues due to their interactions with acculturative stress. Moreover, religiosity significantly influence seeking and sharing Islamic knowledge on face book amongst Cambodian Muslim young adults [42]. Very few studies were performed on the impact of religiosity on young adults’ financial distress. Lajuni et al. (2018) [43] investigated how religiosity, financial knowledge, and financial behaviour impacted the Malaysians millennial generation’s personal financial distress. The findings showed that behavioural traits had a stronger impact on the incidence of personal financial distress than religiosity or financial knowledge. Meanwhile, Beny and Puryandani (2021) [44] examined the effect of financial knowledge, financial behaviour, and religiosity on personal financial distress amongst the millennial generation group in Semarang City. The study found that religiosity did not influence personal financial distress.

Several studies investigated the potential moderating effects of religiosity in various context during the COVID-19 pandemic. Most of the studies found that religiosity had significant moderating effects on the context of the studies. The issues been investigated were in the areas such as marketing (e.g. 14; 3; 61) and donor attitude (e.g. 73; 10). In stress related issues Mahfoud et al. (2023) [45] found that religiosity moderates the relationship between psychological distress and coping strategies affecting adaptive behaviour to stress. Meanwhile, Othman et al. (2023) [46] revealed that religiosity moderates the relationship between stressors (workload and environment, organizer and colleagues, dealing with recipients and knowledge and skills) and mental health of volunteers at the Vaccine Distribution Centers in Klang Valley, Malaysia. The moderating role of religiosity specifically in the context of young adults during the COVID-19 pandemic were performed on issues such as well-being, consumption behaviour and quality of life. Hardjo et al. (2021) [47] found that religiosity has moderating effect on the relationship between problem focus coping and psychological well-being. Additionally, Daulay et al. (2022a) [48] discovered that religiosity moderates the relationship between gratitude and well-being of Indonesian college and university new students during the COVID-19 pandemic. Furthermore, religiosity moderated the relationship between stress and well-being of university students in Indonesia [49]. On consumption behaviour issue Priantina and Sapian (2022) [50] revealed the moderating effect of religiosity on the influence of crisis magnitude on consumption behaviour of millennials. Religiosity, nevertheless, has no moderating effect on the relationship between stress and quality of life of college students [51].

Inadequate literature showed inconclusive results regarding the role of religiosity in dealing with young adults’ financial stress. Othman and Sipon (2014) [52] found religiosity as one of the significant tools to cope with financial stress. Therefore, the aims of this study to explore the moderating role of religiosity in reducing the negative impact of financial strain on Muslim young adults’ financial stress is deemed timely and imperative.

2.5. Attribution theory

This study utilised attribution theory [15] to explain the relationships between Muslim young adults’ financial strain, religiosity and financial stress. According to Heider (1958) [15] attribution theory describes how someone explains the causes for other people’s or their own behaviour, which is influenced by internal factors (traits, characters, attitudes and others) or external factors (pressure of certain situations or circumstances). Internal factors are the focus of this study as the financial strain and religiosity are considered as causes within the Muslim young adults. Attribution theory had been used in stress related studies (e.g. 49; 85). Specifically, in financial stress related literature, Turner (1995) [53] utilised the attribution theory to describe the effect of the internal factor, which was unemployment.

In this study, the application of attribution theory could be viewed from two perspectives. Firstly, it was predicted that the financial stress of Muslim young adults was attributed by the financial strain that they faced. Secondly, it was predicted that religiosity could attribute to the impact of financial strain on Muslim young adults’ financial stress. Financial strain and religiosity were inherent internal factors in Muslim young adults. While the financial strain was perceived to have direct impact on financial stress, religiosity was perceived to have indirect impact on Muslim young adults’ financial stress. In summary, based on the attribution theory causes of financial stress were attributed by Muslim young adults’ internal virtue, which were financial strain and religiosity.

2.5.1. Hypotheses

Financial problems or strain relates to negative financial behaviour and consequently cause financial stress. Conversely, individuals who show lower financial problem tend to have lower financial stress [54]. Agarwal et al. (2007) [55] indicated that financial problem was most prevalent amongst younger people. Young adults are vulnerable in terms of increased financial strain. Emerging adulthood is a stage during which a feeling of financial responsibility is being developed [56]. Du et al. (2021) [8] advocated that financial stress

was characterised as difficulty in meeting financial obligations. Friedline et al. (2020) [57], for instance, linked financial stress to circumstances in which families encounter financial-related psychological stress when they struggle to pay bills, satisfy daily necessities, and have enough money for a month.

Stallman (2010) [58] reported the association between financial pressures and higher levels of psychological distress among university students, in addition to mental health disorders. According to Georgakopoulos (2020) [32], the COVID-19 pandemic's effects were the main source of stress, and financial stress was one of the causes of mental health disorders among Australian students. Also, much lower levels of depression were displayed by students who were satisfied with their financial situation than those who were not. Financial strain was identified by Hertz-Palmor et al. (2021) [59] as one of the major predictors of depression and anxiety symptoms during the COVID-19 pandemic. Furthermore, Ettman et al. (2021) [60] reported an association between financial instability caused by COVID-19 and mental health symptoms. Prakash et al. (2022) [20] revealed that financial well-being was significantly negatively impacted by financial stress. Additionally, the study discovered that financial stress mediated the relationship between financial literacy and financial well-being.

Consistent with the attribution theory, this study predicted that financial strain attributed to the Muslim young adults' financial stress. This denoted that Muslim young adults who were under more financial strain would experience higher level of financial stress. Thus, based on the preceding discussion, the following hypothesis is proposed.

H1. Financial strain causes financial stress amongst Muslim young adults during the COVID-19 pandemic.

Financial strain; however, does not always correspond to financial stress (e.g. 26). Even though individuals were faced with financial problems, they might occasionally be contented with their financial situation, which projected in low level of financial stress. In this instance, spiritual or religiosity might somewhat contribute to the individuals' ability in processing the high level of financial strain to be a low level of financial stress. Religiosity might make them able to control their emotions. Othman and Sipon (2014) [52] indicated that religiosity was considered as one of significant tools to cope with financial stress stipulation by praying to God/Allah to give them strength and wisdom to escape from the stressful financial situation. Othman and Sipon (2014) [52] also found that religiosity and good financial management were effective coping strategies of financial stress. In this regard, it is imperative to conduct subjective assessment of the Muslim young adults' financial strain and religiosity to understand potential influence of these constructs on their financial stress. Stein et al. (2013) [29] reported that young adults who believed the financial crisis was God's punishment typically reported having a more depressed mood and less life satisfaction. Furthermore, for young individuals who reported higher levels of depression and anxiety, there was a direct relationship between perceived economic pressure and psychological well-being [29]. Therefore, this study suggested the possibility that religiosity plays a significant role in minimising the detrimental effects of financial strain on Muslim young adults' financial stress during the COVID-19 pandemic. In line with the attribution theory, this study predicted that religiosity as an internal factor within the Muslim young adults will attribute to reduce the negative impact of financial strain on Muslim young adults' financial stress. As such, the next hypothesis of this study is as follows.

H2. Religiosity (in terms of level or dimension) reduces the negative impact of financial strain on Muslim young adults' financial stress during COVID-19 pandemic.

3. Research method

3.1. Research design and sample

A survey was conducted to solicit the construct of Muslim young adults' financial strain, financial stress and religiosity. According to Mathews (2010) [61], the age range for young adults was between 18 and 24 years old. As the exact population numbers of Muslim young adults was unknown, sample was utilised in this study. Non-probability purposive sampling technique was employed because the sample frame was not available. Based on this technique the potential respondents were invited to voluntarily participate in the survey. In the preamble of the research instrument clearly stated the criteria of the targeted respondents that were: (1) Malaysian Muslim young adults, and (2) age between 18 and 24 years old. The minimum sample size for this study was estimated to be 107 using the G*Power version 3.1.9.7 based on the presence of two predictors at 0.05 significance level and statistical power of 0.95. After data screening, a final set of 230 validated research instrument were taken as sample size of this study and used for further analysis.

3.2. Research instrument

The questionnaire was developed based on literature on financial stress, financial strain and religiosity of young adults. The questionnaires were used to assess respondents' attitudes, feelings, and perceptions about their financial situation [[54,62]]. Financial stress and financial strain measurements were adopted from Caplan and Schooler (2007) [4], who followed Pearlin and Schooler (1978) [63]. Meanwhile, Mahdzan et al. (2017) [64] measurement scale for religiosity was adopted. This scale was adapted by Mahdzan et al. (2017) [64] from Wan Ahmad et al. (2008) [65] and Tiliouine and Belgoumidi (2009) [66]. The religiosity construct was divided into two components, which were beliefs and practices.

Initially, the questionnaire was given to a panel of five established researchers in relevant fields to evaluate whether the measures of the questionnaire include an adequate and representative set of items that tap the concept [67] of financial stress, financial strain and religiosity. Based on the feedback from the panel, there was no amendment required on the questionnaire. Further, in order to make sure that the questions were understood by the respondents and that there were no issues with the language or measurement, a pre-test was conducted [67] on five Muslim young adults. The feedback demonstrated that the questions were adequate and

understood by the respondents.

Subsequently, a pilot test was performed on 30 respondents who were selected from the study sample. The size of the pilot group, according to Cooper and Schindler (2006) [68], may range from 25 to 100 respondents, and they are not required to be statistically selected. The purpose of this test was to find instrumentation and design flaws such as unclear instructions, omissions or unexpected answers in multiple choice questions, and comments on the length of the questionnaire. In response to feedback from the pilot test, the questionnaire needs no change and subsequently were sent to the actual respondents. The data collection took place for a period of two months starting from October 2021 until November 2021.

3.3. Variables of the study

3.3.1. Dependent variable

Financial stress was the dependent variable of the study. It was measured by nine statements [4]. Respondents were required to respond to nine statements about their feelings when they think of their financial situation during the COVID-19 pandemic by using a 5-point Likert-scale, that ranged from 1 (not at all), 2 (unlikely), 3 (neither likely nor unlikely), 4 (likely) to 5 (extremely likely). Higher scores indicated higher levels of financial stress.

3.3.2. Independent variable

The independent variable of the study was financial strain. It was measured by five questions [4]. Respondents were required to respond to five questions regarding their financial experience during the COVID-19 pandemic, specifically pertaining to how often they did not have enough money to buy food, medical, clothing, including mortgage/rent payment and bill payment. These questions were asked on 5-point Likert-scale, that ranged from 1 (never), 2 (seldom), 3 (sometimes), 4 (usually) and 5 (always). Higher scores denoted higher levels of financial strain.

3.3.3. Moderating variable

Religiosity was measured according to Mahdzan et al. (2017) [64] by using 29 items. Belief (11 items) was measure on 5-point Likert-scale, ranging from 1 (strongly do not believe), 2 (do not believe), 3 (neither believe nor not believe), 4 (believe) and 5 (strongly believe). Practice (18 items) was measured on 5-point Likert-scale, ranging from 1 (never), 2 (seldom), 3 (neutral), 4 (sometimes) and 5 (often).

Table 1
Demographic profiles.

| | Frequency | Percent |
|--------------------------------|------------|--------------|
| Gender | | |
| Female | 132 | 57.4 |
| Male | 98 | 42.6 |
| Total | 230 | 100.0 |
| Age | | |
| 18 | 2 | 0.9 |
| 19 | 23 | 10.0 |
| 20 | 10 | 4.3 |
| 21 | 2 | 0.9 |
| 22 | 88 | 38.3 |
| 23 | 81 | 35.2 |
| 24 | 24 | 10.4 |
| Total | 230 | 100.0 |
| Race | | |
| Malay | 223 | 97.0 |
| Chinese | 1 | 0.4 |
| Indian | 2 | 0.9 |
| Others | 4 | 1.7 |
| Total | 230 | 100.0 |
| Home Location | | |
| Northern Region | 19 | 8.3 |
| Central Region | 103 | 44.8 |
| Southern Region | 81 | 35.2 |
| East Coast | 20 | 8.7 |
| Sabah | 3 | 1.3 |
| Sarawak | 4 | 1.7 |
| Total | 230 | 100.0 |
| Highest education level | | |
| Bachelor Degree | 121 | 52.6 |
| Diploma | 47 | 20.4 |
| Others | 62 | 27.0 |
| Total | 230 | 100.0 |

4. 4. results

4.1. 4.1

Table 1 presents the Muslim young adults' demographic profiles. Analysis on the Muslim young adults' demographic profiles was performed. Out of 230 respondents, the majority (132, 17.4 %) were females, while 98 (42.6 %) were males. The majority of respondents (169, 73.5 %) were between 22 and 23 years old. The remaining respondents were either 18 years old (2, 0.9 %), 19 years old (23, 10 %), 20 years old (10, 4.3 %), 21 years old (2, 0.9 %) or 24 years old (24, 10.4 %). In terms of race, the majority of respondents are Malay (223, 07 %) whereby Chinese 1 (0.4 %), Indian 2 (0.9 %) and Others 4 (1.7 %). For home location, majority of the respondents were from Central region (103, 44.8 %), followed by Southern Region (81, 35.2 %). Few respondents represented Sabah region (3, 1.3 %) and Sarawak region (4, 1.7 %). This study also required respondents to indicate their highest education level. Results showed that the majority of respondents held a bachelor's degree (121, 52.6 %), diploma (47, 20.4 %) and others 62 (27 %). Those who selected others indicated that they either held SPM (Sijil Pelajaran Malaysia/Malaysian Certificate of Education), STPM (Sijil Tinggi Pelajaran Malaysia/Malaysian Higher School Certificate) or Matriculation studies.

4.2. Level of financial strain and financial stress

This study examined the level of Muslim young adults' financial strain and financial stress. **Table 2** presents respondents' means of financial strain. The results showed that all items which measured the financial strain were between 2.28 and 2.73. This denoted that the Muslim young adults seldom faced financial strain during the COVID-19 pandemic. Following Mohamad Fazli et al. (2018) [1] higher scores represented higher levels of financial strain. This study classified the financial strain level into three levels, which were low (never and seldom), moderate (sometimes) and high (usually and always). **Table 3** shows that 69 (30 %) Muslim young adults fell under the high level of financial strain, 71 (30.9 %) fell under moderate level and 90 (39.1 %) fell under low level.

Furthermore, from **Table 2** five items which measured financial stress displayed that the financial stress were between 3.03 and 3.5. This signified that when thinking about their financial situation during the COVID-19 pandemic, the Muslim young adults felt neither likely nor unlikely that they were worried, bothered or upset, tense, insecure and contented. Meanwhile, the remaining four items that measured financial stress were within 2.81–3.00. This denoted that the Muslim young adults when thinking about their financial situation during the COVID-19 pandemic, they were unlikely to feel frustrated, relaxed, unhappy or pleased. This study classified the financial stress level into three levels, which were low (not at all and unlikely), moderate (Neither likely nor unlikely) and high (likely and extremely likely). **Table 3** shows that the majority of Muslim young adults, 130 (56.5 %) fell under high level of financial stress, 87 (37.8 %) fell under moderate level and 13 (5.7 %) fell under low level.

4.3. Religiosity

The analysis began with reliable constructs determination of religiosity by using SPSS. Next, the overall model was executed by using Smart PLS. An exploratory factor analysis (EFA) was initially performed to reduce the 29 items that captured Islamic religiosity into a fewer number of factors. This procedure was made to determine the latent constructs of religiosity. **Table 4** presents the results of EFA by using factor loading of 0.6 [69], resulting in five items being excluded due to low factor loadings. The remaining 24 items produced ten-factor solution. However, Factor 5, Factor 7, Factor 8, Factor 9 and Factor 10 were excluded as only one item was loaded for each factor. Then, reliability tests were performed on Factor 1, Factor 2, Factor 3, Factor 4 and Factor 6. The results demonstrated that Cronbach's alpha values for Factor 3, Factor 4 and Factor 6 were less than 0.6, and thus these factors were discarded. Cronbach's alpha values above 0.6 are regarded as acceptable [70] and values above 0.8 are regarded as good [71]. Factor 1 and Factor 2 demonstrated high reliability scores with Cronbach's alpha values of 0.913 and 0.847, respectively. Eventually, only 13 items were used to represent the Muslim young adults' latent constructs of religiosity. The factor names were identical to those used by Mahdzan

Table 2
Mean of financial strain and financial stress of Muslim young adults.

| | Item | Minimum | Maximum | Mean | Std. Deviation |
|-------------------------|---|---------|---------|------|----------------|
| Financial Strain | Meet monthly payments on your bills? (FS5) | 1 | 5 | 2.73 | 1.406 |
| | Buy the kind of clothing you should have? (FS3) | 1 | 5 | 2.72 | 1.329 |
| | Pay for the kind of medical care you should have? (FS2) | 1 | 5 | 2.53 | 1.375 |
| | Make mortgage or rent payments on time? (FS4) | 1 | 5 | 2.30 | 1.396 |
| | Buy the kind of food you should have? (FS1) | 1 | 4 | 2.28 | 0.954 |
| Financial Stress | Worried (FS04) | 1 | 5 | 3.50 | 1.077 |
| | Bothered or upset (FS01) | 1 | 5 | 3.26 | 1.159 |
| | Tense (FS02) | 1 | 5 | 3.12 | 1.187 |
| | Insecure (FS08) | 1 | 5 | 3.04 | 1.202 |
| | Contented (FS03) | 1 | 5 | 3.03 | 0.962 |
| | Frustrated (FS05) | 1 | 5 | 3.00 | 1.165 |
| | Relaxed (FS06) | 1 | 5 | 2.99 | 1.084 |
| | Unhappy (FS07) | 1 | 5 | 2.87 | 1.110 |
| | Pleased (FS09) | 1 | 5 | 2.81 | 1.048 |

Table 3
Level of financial strain and financial stress of Muslim young adults.

| Financial Strain | Frequency | Percent | Financial Stress | Frequency | Percent |
|------------------|------------|--------------|-----------------------------|------------|--------------|
| Never | 29 | 12.6 | Not at all | 0 | 0 |
| Seldom | 61 | 26.5 | Unlikely | 13 | 5.7 |
| Sometimes | 71 | 30.9 | Neither likely nor unlikely | 87 | 37.8 |
| Usually | 50 | 21.7 | Likely | 124 | 53.9 |
| Always | 19 | 8.3 | Extremely likely | 6 | 2.6 |
| Total | 230 | 100.0 | Total | 230 | 100.0 |

et al. (2017) [64].

This study further measured the religiosity construct based on level and dimensions, similar to the process adopted by Mahdzan et al. (2017) [64]. The following section presented the discussion.

4.3.1. Level of religiosity of Muslim young adults

Level of Islamic religiosity was measured by the relative strength of religiosity represented by Casual, Moderate and Devout [65]. Casual denotes low religious practice, Moderate denotes modest religious practice and Devout denotes high religious practice. The categorisation process was done based on Mahdzan et al. (2017) [64] in which a grand mean was computed for the 13 items which represented the Muslim young adults' latent constructs of religiosity. The grand mean obtained (4.647) was then used to categorise the Muslim young adults into Casual, Moderate or Devout groups. The Muslim young adults were categorised as Casual if their religiosity mean scores were 0.5 standard deviation; 4.147 ($\mu \leq 4.147$). If the Muslim young adults' religiosity mean scores were between 4.147 and 4.647 they were categorised as Moderate ($24.147 < \mu > 4.647$) and above 4.647 were categorised as Devout (≥ 4.647). Table 5 shows that there were 41 (17.8 %) Muslim young adults were under Casual category, 38 (16.5 %) under Moderate category and 151 (65.7 %) under Devout category.

4.4. Financial strain and financial stress

This study performed the level of religiosity and each dimension of religiosity (faith and virtue) as moderators in three separate models by using SmartPLS 3. Model 1 used level of religiosity as moderator, while Model 2 used faith and Model 3 used virtue as moderator. Based on the results, R-squared (R^2) value for Model 1 showed the highest changes in R^2 value as compared to the other two

Table 4
Exploratory factor analysis for religiosity.

| Factor | Item | Factor loading | Cronbach's alpha | Mean |
|------------------------|--|--------------------|------------------|--------------------|
| Factor 1 (Faith) | Islam is the way of life. | 0.966 | 0.913 | 4.910 ^c |
| | Quranic teachings are applicable in today's life. | 0.966 | | |
| | Rasulullah's traditions are applicable throughout all times. | 0.902 | | |
| | There is only one God (Allah). | 0.878 | | |
| | All mankind deeds will be judged and rewarded accordingly after death. | 0.771 | | |
| | One should fear all that offend Allah. | 0.757 | | |
| | Reward of paradise encourages me to do good doings. | 0.679 | | |
| Factor 2 (Virtue) | One will feel discomfort when missing worship time (such as prayer). | 0.646 | 0.847 | 4.225 ^c |
| | I give charity for religious purposes. | 0.824 | | |
| | I ask Allah's pardon for wrong saying or lies. | 0.815 | | |
| | I read Quran and perform zikir. | 0.771 | | |
| | I am honest at all times. | 0.744 | | |
| Factor 3 | I advise others to do good and avoid evil. | 0.698 | 0.558 | 4.530 ^c |
| | I pray five times a day. | 0.827 | | |
| Factor 4 ^c | I pay zakat fitrah every year. | 0.637 | 0.422 | |
| | I care about neighbours and their wellbeing. | 0.727 | | |
| | I visit my family/friend when they are bedridden. | 0.621 | | |
| Factor 5 ^b | I go to the mosque to pray "solat fardh". | 0.507 ^a | - | |
| | Destiny is determined by Allah alone. | 0.801 ^b | | |
| Factor 6 | I ask Allah's pardon for wrong saying or lies. | 0.468 ^a | 0.420 | 4.693 ^c |
| | I fulfill all that I promise. | 0.782 | | |
| Factor 7 ^b | I make sure that my dressing covers my aurat. | 0.693 | - | |
| | I have taken or given bribes. | 0.790 ^b | | |
| | My earnings are from my own efforts and none from Allah's will. | 0.508 ^a | | |
| | I have conventional bank account. | 0.384 ^a | | |
| Factor 8 ^b | I have taken interest (riba). | 0.266 ^a | - | |
| | I fast the whole of Ramadhan. | 0.810 ^b | | |
| Factor 9 ^b | I worry if I cannot pay debt on time. | 0.758 ^b | - | |
| Factor 10 ^b | I make sure the food and drink I consumed are halal. | 0.825 ^b | - | |

Notes: ^aItems discarded because factors loading below than 0.6; ^bFactors discarded as only one item is loaded for each factor; ^cMean of items was computed for factor with factor loadings above 0.6.

models. Therefore, this study presented and discussed the main and moderating effects as produced by Model 1.

Reflective measurements were used for the constructs of this study. Table 6 presents a summary of the reflective measurement model evaluation and Fig. 1 depicts the structural model. Loading, composite reliability (CR), and average variance extract (AVE) were used to measure the model's convergence validity. As shown in Table 6, three items for the construct financial stress (contented, relaxed, pleased) were removed because the outer loadings were very low. All items that measured the construct financial strain were retained as the outer loadings were above 0.752. For internal consistency, CR for all constructs was above 0.9, denoting an acceptable internal consistency level. As for the AVE scores, all were above 0.5, indicating adequate convergent validity [69].

Cross loading, Fornell-Larcker Criterion, and Heterotrait-Monotrait (HTMT) were used to measure the discriminant validity. Table 7 shows that all of the items' loadings on the associated constructs were greater than all of their loadings on other constructs. Therefore, it can be inferred that the indicators of different constructs were not inter-changeable. These results demonstrated a good discriminant validity [72]. Moreover, Table 8 displays results of the Fornell-Larcker Criterion demonstrated that each construct adequately explained the variance on its own items compared to the variance of other constructs. Lastly, as shown in Table 9, the HTMT results did not include the value of 1 signifying the establishment of discriminant validity.

Fig. 1 depicts the structural model by using bootstrapping before the moderation effect. The results exhibited the R^2 value for financial stress was 0.134, which indicated that this construct was moderately explained by the independent variables, financial strain [73].

Following, the structural equation modelling with moderation effect of religiosity was performed on the framework of this study. Fig. 2 shows the graphical representation of the structural model by using bootstrapping. The results displayed an increase in the R^2 value by 9.7 % with improved R^2 value of 0.147. Although the financial stress was still moderately explained by the financial strain [73], the changes in the R^2 value was an indicative the potential role played by the moderator, religiosity. The effect size f squared (f^2) was 0.036 for the predictive value of financial strain on financial stress indicating that financial strain had small effect in producing the R^2 value for financial stress.

The summary of the results is presented in Table 10. The results showed that financial strain had positive effect on financial stress. The path coefficient for Religiosity is negative indicating a possible moderating influence of religiosity on the relationship between Muslim young adults' financial strain and financial stress during the COVID-19 pandemic. However, the relationship was not significant.

5. Discussion

Findings of this study showed that H1 was accepted, signifying that the more financial strain or financial problem faced by the Muslim young adults during the COVID-19 pandemic the higher financial stress they faced. The finding corroborated with Du et al. (2021) [8] that the majority of higher education students in their study were reported as having greater financial stress during the COVID-19 pandemic as compared to before. The finding of this study also validated Georgakopoulos (2020) [32] that Muslim young adults who had low level of financial strain, which might be denoted that they were satisfied with their financial position, reflected in lower level of financial stress as compared to those who were unsatisfied. Moreover, Archuleta et al. (2013) [30] revealed that financial satisfaction and student loans were associated with financial anxiety of college students. The findings of this study were in line with the fact that the majority of the Muslim young adults (60.9 %) were at least rated at moderate level of financial strain, while, majority of them (94.3 %) were at least rated at moderate level of financial stress. Meaning that Muslim young adults who have greater financial strain will experience higher level of financial stress. Additionally, the findings of this study corroborated with those of Stein et al. (2013) [29], Kujawa et al. (2020) [33], Loh et al. (2021) [19], PwC (2021) [31] and Graupensperger et al. (2022) [7]. Furthermore, consistent with PwC (2021) [31] that financial health during the pandemic contributed to the financial stress amongst individuals, the findings of this study showed that for all financial strain items presented to the Muslim young adults, they rated as sometimes they faced the problem during the COVID-19 pandemic. Additionally, the findings were consistent with the attribution theory that financial strain, as internal factors inherent within the Muslim young adults, attributed to their financial stress.

However, H2 was not accepted which implied that religiosity did not moderate the relationship between the financial strain and financial stress. This finding corroborated with Joseph et al. (2023) [51] in that religiosity did not moderate the relationship between stress and quality of life of college students. Moreover, Beny and Puryandani (2021) [44] found religiosity did not influence the millennial generation group personal financial stress. The results of this study contradicted the findings by Daulay et al. (2022b) that religiosity moderated the relationship between stress and well-being of university students during COVID-19 pandemic. Similarly, it contradicted with Hardjo et al. (2021) and Daulay et al. (2022a; 2022b) who discovered that religiosity has moderating effect in their studies on young adults' well-being during the pandemic. Furthermore, the findings did not support the attribution theory that religiosity, in terms of belief and practice, that was inherent to the Muslim young adults did not attribute to the lower negative impact

Table 5
Frequency of religiosity level of Muslim young adults.

| | N | Percent |
|----------|-----|---------|
| Casual | 41 | 17.8 |
| Moderate | 38 | 16.5 |
| Devout | 151 | 65.7 |
| Total | 230 | 100.0 |

Table 6
Summary of measurement model results.

| Constructs | Items | Item reliability Loading | Internal consistency reliability Composite reliability | Convergent validity AVE | Discriminant validity | | |
|--------------------------|-------|--------------------------|--|-------------------------|-----------------------|------------------|----------------------------|
| | | | | | Cross loading | Fornell Larcker | HTMT CI does not include 1 |
| Financial stress | FS01 | 0.898 | 0.919 | 0.656 | Refer to Table 7 | Refer to Table 8 | Yes |
| | FS02 | 0.879 | | | | | |
| | FS04 | 0.759 | | | | | |
| | FS05 | 0.831 | | | | | |
| | FS07 | 0.738 | | | | | |
| | FS08 | 0.739 | | | | | |
| Financial strain | FS1 | 0.856 | 0.911 | 0.673 | | | Yes |
| | FS2 | 0.846 | | | | | |
| | FS3 | 0.848 | | | | | |
| | FS4 | 0.752 | | | | | |
| | FS5 | 0.794 | | | | | |
| Religiosity level | | 1.000 | 1.000 | 1.000 | | | Yes |

Table 7
Cross loading result.

| | Financial Stress | Financial Strain | Level of Religiosity | Financial strain*Level of religiosity |
|-------------------------|------------------|------------------|----------------------|---------------------------------------|
| FS01 | 0.898 | 0.306 | -0.146 | 0.124 |
| FS02 | 0.879 | 0.348 | -0.190 | 0.142 |
| FS04 | 0.759 | 0.237 | -0.052 | 0.130 |
| FS05 | 0.831 | 0.294 | -0.060 | 0.175 |
| FS07 | 0.738 | 0.157 | -0.099 | 0.057 |
| FS08 | 0.739 | 0.211 | -0.160 | 0.071 |
| FS1 | 0.295 | 0.856 | -0.012 | 0.614 |
| FS2 | 0.269 | 0.846 | 0.005 | 0.634 |
| FS3 | 0.325 | 0.848 | 0.076 | 0.697 |
| FS4 | 0.220 | 0.752 | 0.072 | 0.625 |
| FS5 | 0.238 | 0.794 | 0.148 | 0.694 |
| Religiosity level | -0.153 | 0.066 | 1.000 | 0.608 |
| Religiosity level * FS1 | 0.120 | 0.709 | 0.577 | 0.889 |
| Religiosity level * FS2 | 0.129 | 0.734 | 0.501 | 0.885 |
| Religiosity level * FS3 | 0.170 | 0.711 | 0.551 | 0.905 |
| Religiosity level * FS4 | 0.105 | 0.657 | 0.484 | 0.828 |
| Religiosity level * FS5 | 0.108 | 0.664 | 0.564 | 0.871 |

Note: FS0 =Financial stress; FS = Financial strain.

Table 8
Fornell-Larcker criterion results.

| | Financial Strain | Financial Stress | Financial strain* Level of religiosity | Level of Religiosity |
|--|------------------|------------------|--|----------------------|
| Financial Strain | 0.820 | | | |
| Financial Stress | 0.333 | 0.810 | | |
| Financial strain*Level of religiosity | 0.793 | 0.149 | 0.876 | |
| Level of Religiosity | 0.066 | -0.153 | 0.608 | 1.000 |

of financial strain on financial stress. Nonetheless, it was imperative to note that although a significant relationship was not obtained but to some extent religiosity had possible influence on the relationship as shown on the negative path coefficient. This means that the higher the level of religiosity the more it reduces the impact of financial strain on the Muslim young adults' financial stress during the COVID-19 pandemic. As such, to some extent religiosity might be a tool to cope the Muslim young adults' financial stress [52].

6. Conclusion

The COVID-19 pandemic has been a challenging time for many people including, Muslim young adults. The young adults are perceived to be in a vulnerable development period [7] that may cause them to be associated with elevated concerns for financial strain and financial stress. The findings of this study had practical implications, such as the need to develop more support services and activities by appropriate agencies which can assist Muslim young adults in facing the negative impact of the COVID-19 pandemic.

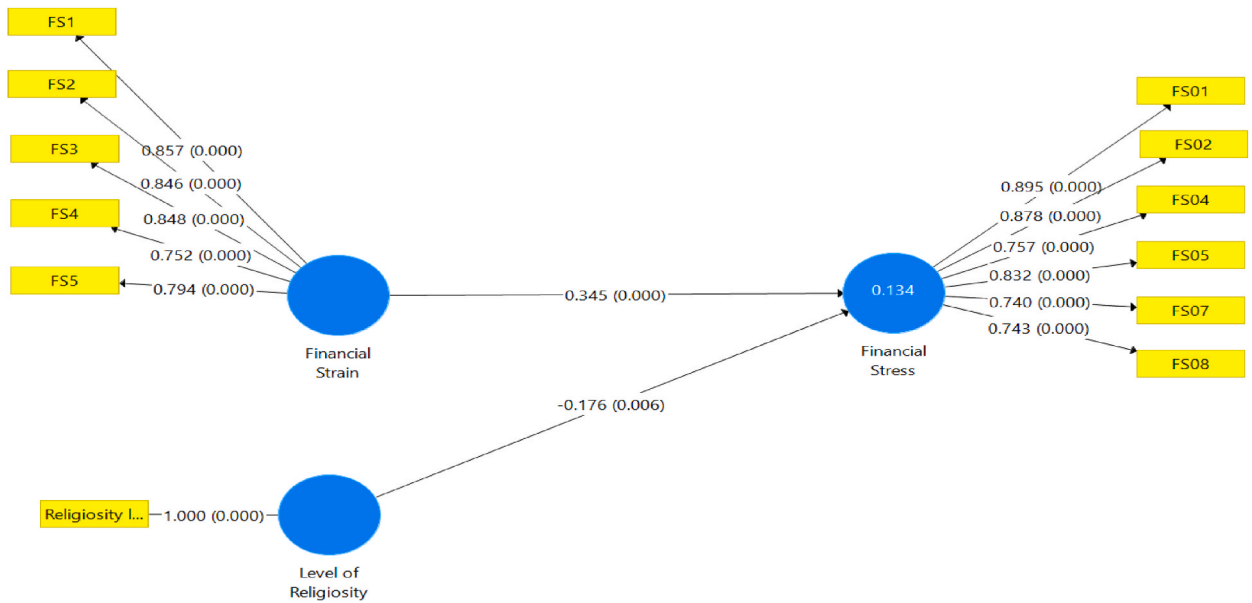


Fig. 1. Structural model before moderation effect of level of religiosity.

Table 9
Heterotrait-Monotrait (HTMT) results.

| | Financial Strain | Financial Stress | Financial stress* Level of religiosity | Level of Religiosity |
|---------------------------------------|------------------|------------------|--|----------------------|
| Financial Strain | 0.353 | | | |
| Financial Stress | 0.883 | 0.152 | | |
| Financial stress*Level of religiosity | 0.081 | 0.154 | 0.634 | |
| Level of Religiosity | | | | |

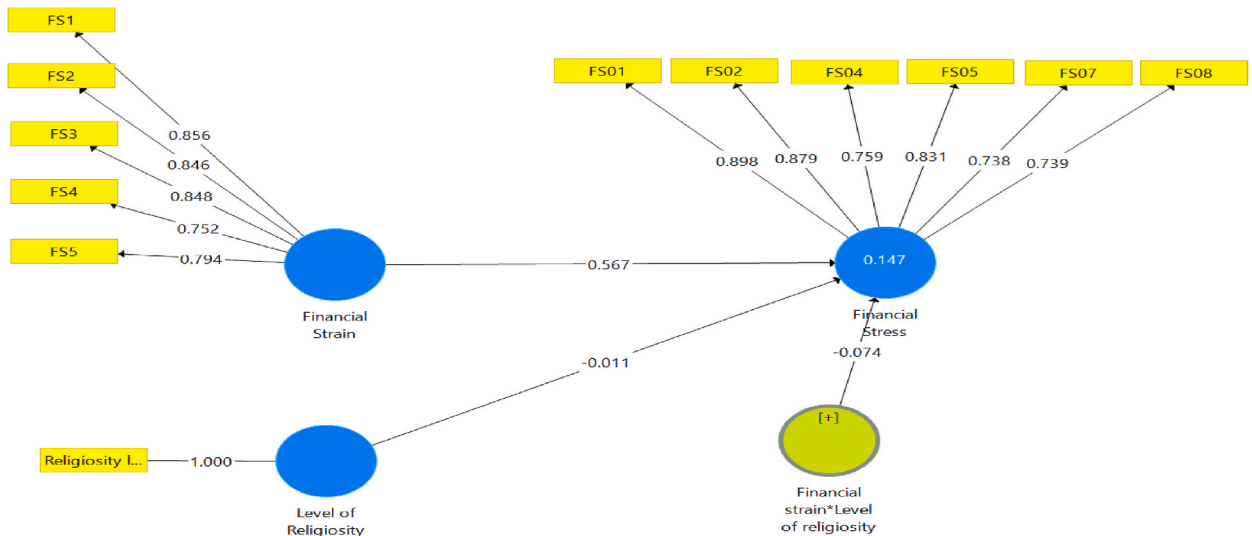


Fig. 2. Structural model after moderation effect of level of religiosity.

Seminars or counselling sessions in managing financial strain and financial stress can be held to educate Muslim young adults as this group of people contributes to the country in workforce and economics. This study offered theoretical implications, whereby financial stress and financial strain constructs [[4,63]], and religiosity construct [[64,66,65]] were empirically tested in the scope of Muslim young adults. Furthermore, the findings revealed that the attribution theory, to some extent, explain the relationship between financial

Table 10
Summary of results.

| | | Path coefficient, B | t values | p values | Decision |
|----|--|---------------------|----------|----------|---------------|
| H1 | Financial Strain - > Financial Stress | 0.567 | 2.390 | 0.008 | Supported |
| H2 | Financial Strain*Level of Religiosity - > Financial Stress | -0.011 | 4.064 | 0.157 | Not supported |

strain and financial stress among Muslim young adults. Therefore, this study made an essential theoretical contribution to the comprehension of the financial stress experienced by Muslim young adults during the COVID-19 pandemic.

The findings of this study are beneficial to various agencies, government or non-profit organisation, financial counsellors and planners to understand and assist individuals, specifically Muslim young adults, who were financially affected by the COVID-19 pandemic. With this kind of financial education, it is expected that it can have a positive impact on the improvement of financial strain, which in turn will reduce financial stress [74]. Furthermore, it is important to educate individual to create ways like preparing a budget or creating an emergency fund which enables them to deal with the financial stress. Understanding the financial situation of Muslim young adults will add knowledge to literature that focuses on this group and their experiences with financial strain and financial stress. Further, this study provides insights regarding the urgency to help Muslim young adults manage their financial strain and financial stress throughout their lives, not just during the COVID-19 pandemic or endemic era. Limitation of this study may be observed from the size of the sample which is small. Nonetheless, the sample size taken was considerably adequate as it is greater than the minimum sample size recommended by the G*Power. Future research can be conducted by performing qualitative approach such as interview to obtain in-depth understanding about the issue of financial stress among the Muslim young adults.

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Data availability statement

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CRedit authorship contribution statement

Nahariah Jaffar: Conceptualization, Data curation, Formal analysis, Funding acquisition, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Sellywati Mohd Faizal:** Writing – review & editing, Conceptualization. **Zarehan Selamat:** Writing – review & editing, Data curation. **Norazlan Alias:** Writing – review & editing, Data curation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2023.e21047>.

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