

HISTORI ARTIKEL

Judul artikel : Students' academic procrastination during the COVID-19 pandemic: How does adversity quotient mediate parental social support?
Nama penulis : Alif Muarifah, Nurul Hidayati Rofiah, Mujidin Mujidin, Zhooriyati Sehu Mohamad, dan Fitriana Oktaviani
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Editorial process yang dilakukan penulis pada jurnal menggunakan sistem dari jurnal tersebut yang dapat diakses di alamat <https://www.frontiersin.org/my-frontiers/submissions> dengan informasi metadata artikel yang disajikan pada Gambar 1 sampai dengan Gambar 4. Histori artikel dari submit hingga terbit dapat dilihat pada Tabel 1.



Gambar 1. Submission page Frontiers in Education



Gambar 2. Halaman review forum Frontiers in Education bagian 1

View submitted files history

Manuscript submission
Supplementary material


Version	Submitted on	Submitted by	
1	03 Jun 2022	Aif Huarifah	Students' academic procrastination during the COVID-19 pandemic: How does adversity quotient mediate parental social support? Contribution to the field Abstract 961820_Manuscript.PDF 961820_Manusc ript.DOCX 961820_Manuscript Figure 1.JPG Figure 2.JPG
1	28 Jun 2022	Aif Huarifah	Students' academic procrastination during the COVID-19 pandemic: How does adversity quotient mediate parental social support? Contribution to the field Abstract 961820_Manuscript.PDF 961820_Manusc ript.DOCX 961820_Manuscript Figure 1.JPG Figure 2.JPG
1	05 Jun 2022	Aif Huarifah	Students' academic procrastination during the COVID-19 pandemic: How does adversity quotient mediate parental social support? Contribution to the field Abstract 961820_Manuscript.PDF 961820_Manusc ript.DOCX 961820_Manuscript Figure 1.JPG Figure 2.JPG

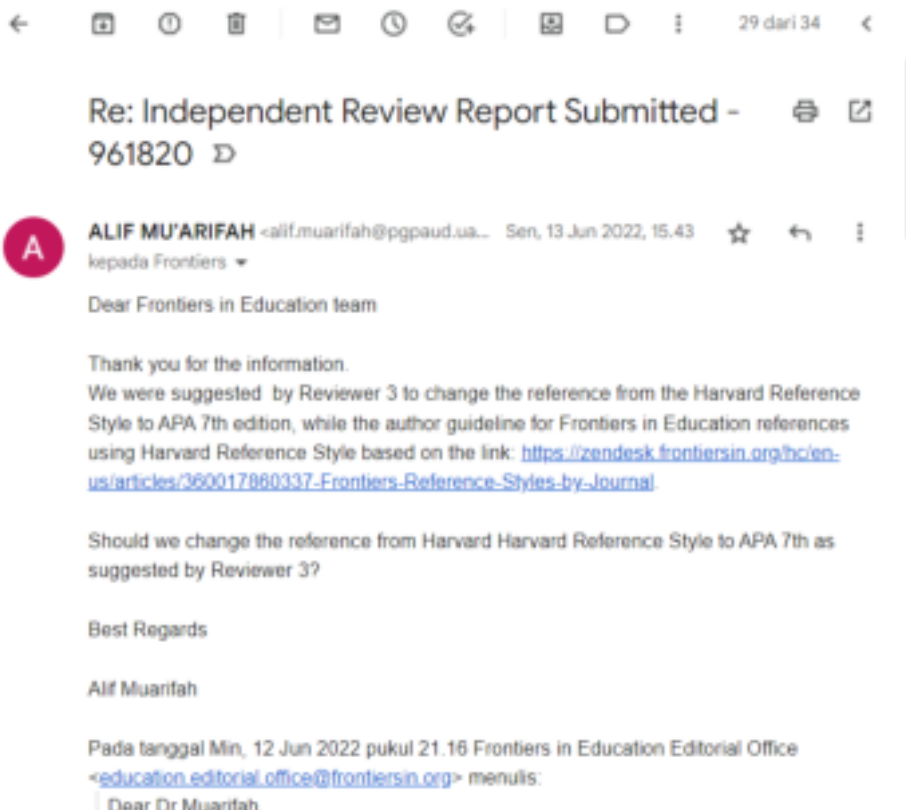
Gambar 3. Halaman review forum *Frontiers in Education* bagian 2

History	Editor Kotera	Reviewer 2 Poncaan	Reviewer 3 Poncaan	+A+ R A+
Date	Updates			
04 Jun 2022	Article accepted for publication.			
03 Jun 2022	Corresponding Author Aif Huarifah re-submitted manuscript. Corresponding Author Aif Huarifah posted new comments in the Editor tab.			
30 Jun 2022	Corresponding Author Aif Huarifah posted new comments in the Editor tab. Associate Editor Roberts Burns requested Corresponding/Submitting Author to re-write the manuscript.			
29 Jun 2022	Review of Review Editor 3 finalized.			
28 Jun 2022	Corresponding Author Aif Huarifah re-submitted manuscript. Review of Review Editor 3 finalized. You posted new comments. You posted new comments. Corresponding Author Aif Huarifah posted new comments in the Editor tab.			
16 Jun 2022	Interactive review forum activated.			
05 Jun 2022	Corresponding Author Aif Huarifah submitted manuscript.			

Gambar 4. Halaman review forum *Frontiers in Education* bagian 3

Tabel 1. Histori Artikel

No	Tanggal	Agenda
1	5 Juni 2023	Submit naskah artikel Naskah ditampilkan pada Lampiran 1
2	12 Juni 2023	<p>Reviewer 3 memberikan evaluasi naskah</p>  <p>The screenshot displays a reviewer interface with the following elements:</p> <ul style="list-style-type: none"> Navigation: Buttons for 'History', 'Editor', 'Reviewer 1', 'Reviewer 2', and 'Reviewer 3'. Reviewer 2 Section: <ul style="list-style-type: none"> Status: 'Independent review report submitted: 12 Jun 2022', 'Interactive review submitted: 16 Jun 2022', 'Review finalized: 20 Jun 2022'. Initial recommendation: 'Revisions to be required'. COMMENT: A red 'Q1' icon followed by text: 'Please list your revision requests for the authors and provide your detailed comments, including highlighting limitations and strengths of the study and evaluating the validity of the methods, results, and data interpretation. If you have additional comments based on Q2 and Q3 you can add them as well.' Comment by Reviewer 3 (11 Jun 2022 14:19): <ol style="list-style-type: none"> The use of English is more titled up. could you please explain the methodology of this research in more detail? the writing references should be adjusted to the style of ACS 7th edition. The writing still needs to be improved, many typos exist. you need more detailing the reason for this statement you write: This portrays that the more significant curriculum burden is borne by MA students than by their SMA and SMP peers in Central Java did not necessarily raise the former major in prosecution to a greater degree than the latter. So, readers understand the characteristics of the differences between MA and SMA, SMP. Response by Corresponding Author (20 Jun 2022 11:02): <p>Thank you for your feedback on our manuscript. We are grateful and appreciate it. We revised based on your comments and suggestions.</p> Reviewer 3 Section: <ul style="list-style-type: none"> Status: 'Check List'. Comment by Reviewer 3 (12 Jun 2022 14:10): <ol style="list-style-type: none"> Is the quality of the figures and tables satisfactory? - Yes Does the reference list cover the relevant literature adequately and in an unbiased manner? - Yes Are the statistical methods valid and correctly applied? (e.g. sample size, choice of test) - Yes Is a statistician required to evaluate this study? - Yes Are the methods sufficiently documented to allow replication studies? - No Response by Corresponding Author (28 Jun 2022 11:42): <p>Thank you for your feedback on our manuscript. We are grateful and appreciate it. We revised based on your comments and suggestions.</p> QUALITY ASSESSMENT: <ul style="list-style-type: none"> Q1: Significance (4/5 stars) Q2: Quality of the writing (4/5 stars) Q3: Overall quality of the content (4/5 stars) Q4: Interest to a general audience (4/5 stars)

3	13 Juni 2023	<p>Alif Muarifah menanggapi evaluasi reviewer 3 terkait perbedaan <i>references style</i> dengan mengirim email ke Frontiers in Education</p>  <p>The screenshot shows an email with the subject "Re: Independent Review Report Submitted - 961820". The sender is ALIF MU'ARIFAH. The email content includes a greeting to the Frontiers in Education team, a thank you for information, a reference to Reviewer 3's suggestion to change from Harvard Reference Style to APA 7th edition, and a link to a Zendesk article. It also asks for confirmation on whether to change the reference style and ends with "Best Regards" and the name "Alif Muarifah". A footer note mentions the date and time of receipt from the Frontiers in Education Editorial Office.</p>
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4	15 Juni 2023	<p>Reviewer 2 memberikan evaluasi naskah</p>  <p>The screenshot shows a peer review interface for Reviewer 2. It includes a "History" tab, an "Editor" tab, and a "Reviewer 2" tab. The review status is "Finalized". The initial recommendation is "Substantial revision is required". The evaluation section contains a "Q1" question about revision requests. The reviewer's comments, dated 15 Jun 2022 at 11:20, thank the editor and provide a list of six specific points for revision, such as organizing the introduction, adding limitations, and testing for normality. The reviewer concludes that the manuscript needs substantial revision.</p>
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Reviewer 3 : 18 Jun 2023 : 11:28

4. Is the quality of the figures and tables satisfactory?
- No

5. Does the reference list cover the relevant literature adequately, and is it well listed/numbered?
- No

6. Are the statistical methods used and correctly applied? (e.g., sample size, choice of test)?
- Yes

7. Is a p-value required to evaluate this study?
- No

8. Are the methods sufficiently documented to allow replication (table)?
- Yes

Corresponding Author: Alif Muarifah : 20 Jun 2023 : 11:42

Thank you for your feedback on our manuscript, the article graphics and appearance is
We would thank you for comments and suggestions.

QUALITY ASSESSMENT

Q1	Eager	5	0	0	0	0	0
Q2	Quality of the writing	4	1	0	0	0	0
Q3	Overall quality of the content	3	2	0	0	0	0
Q4	Interest to a general audience	4	1	0	0	0	0

5 | 16 Juni 2023 | Interactive review dalam system jurnal dibuka

6 | 18 Juni 2023 | Alif Muarifah mengirim email kepada Editor terkait konfirmasi referensi karena belum mendapatkan jawaban

Re: Roberto Burro via Frontiers: Action needed: Interactive review for your manuscript has been activated - 961820

ALIF MU'ARIFAH - alifmuarifah@ppgsaud.u... Sat, 18 Jun 2023, 08:53

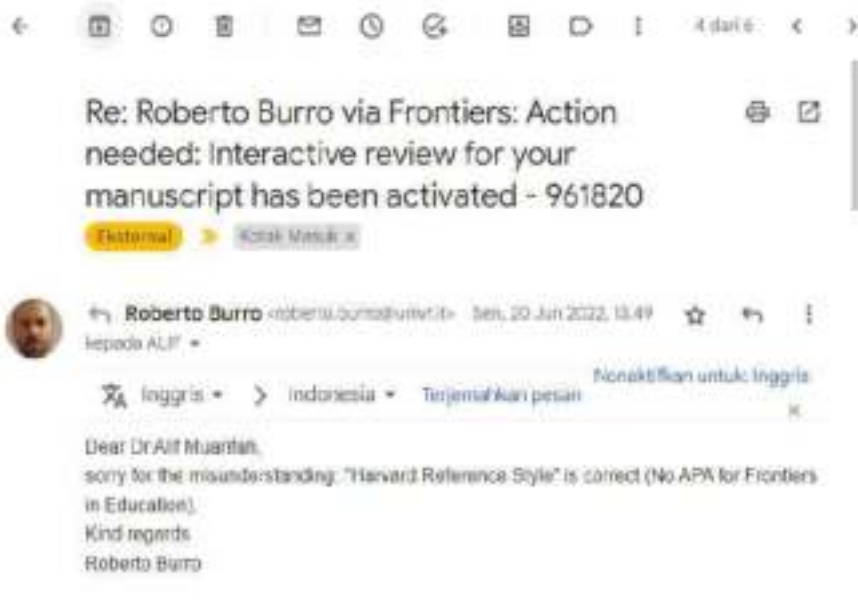
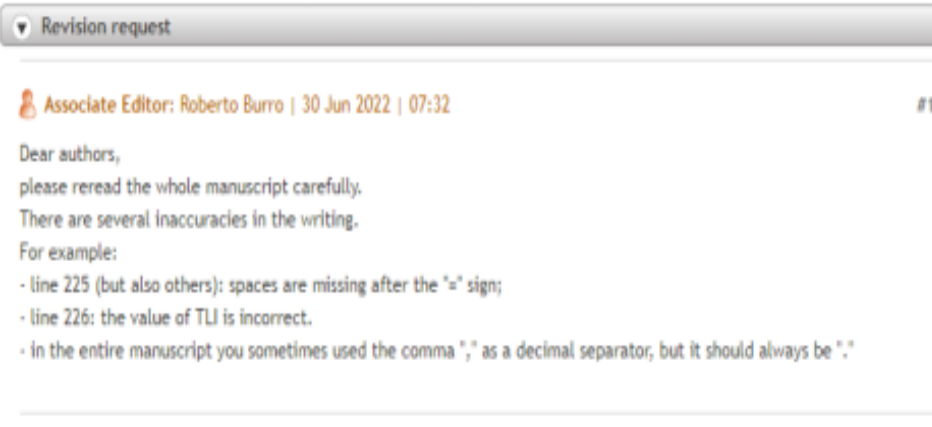
Dear Dr Roberto Burro

Thank you for the information regarding our paper. We were suggested by Reviewer 3 to change the reference from the Harvard Reference Style to APA 7th edition, while the author guideline for Frontiers in Education references using Harvard Reference Style based on the link: <https://zendesk.frontiersin.org/holden-us/articles/360017860137-Frontiers-Reference-Style-by-Journal>.

Should we change the reference from Harvard Harvard Reference Style to APA 7th as suggested by Reviewer 3?

Once again, thank you for your cooperation, help, and kindness. We do really appreciate it.

Best Regards
Alif Muarifah

7	20 Juni 2023	<p>Editor memberikan tanggapan terkait <i>reference style</i></p> 
8	28 Juni 2023	<p>Alif Muarifah mengirimkan <i>table of response dan revisi naskah</i> artikel</p> <p>Table of Response dan revisi naskah ditampilkan pada Lampiran 2</p>
9	30 Juni 2023	<p>Editor memberikan evaluasi naskah</p> 
10	3 Juli 2023	<p>Alif Muarifah mengirimkan revisi naskah kedua</p> <p>Revisi naskah kedua ditampilkan pada Lampiran 3</p>
11	4 Juli 2023	<p>Pemberitahuan naskah diterima dan siap untuk proses publikasi</p>

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Frontiers Education Editorial Office has sent you a message. Please click Reply to send a direct response.

I am pleased to inform you that your manuscript "Students' academic procrastination during the COVID-19 pandemic: How does adversity (students' medicine parental social support)" has been approved for production and accepted for publication in Frontiers in Education, section Educational Psychology. Proofs are being prepared for you to verify before publication. We will also perform final checks to ensure your manuscript meets our criteria for publication (<https://www.frontiersin.org/about/review-system#ManuscriptQualityStandards>).

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 Your Frontiers in Education team

12 13 Juli 2023

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The type-setter has posted the following message in the proof discussion of your article "Students' academic procrastination during the COVID-19 pandemic: How does adversity (students' medicine parental social support)":

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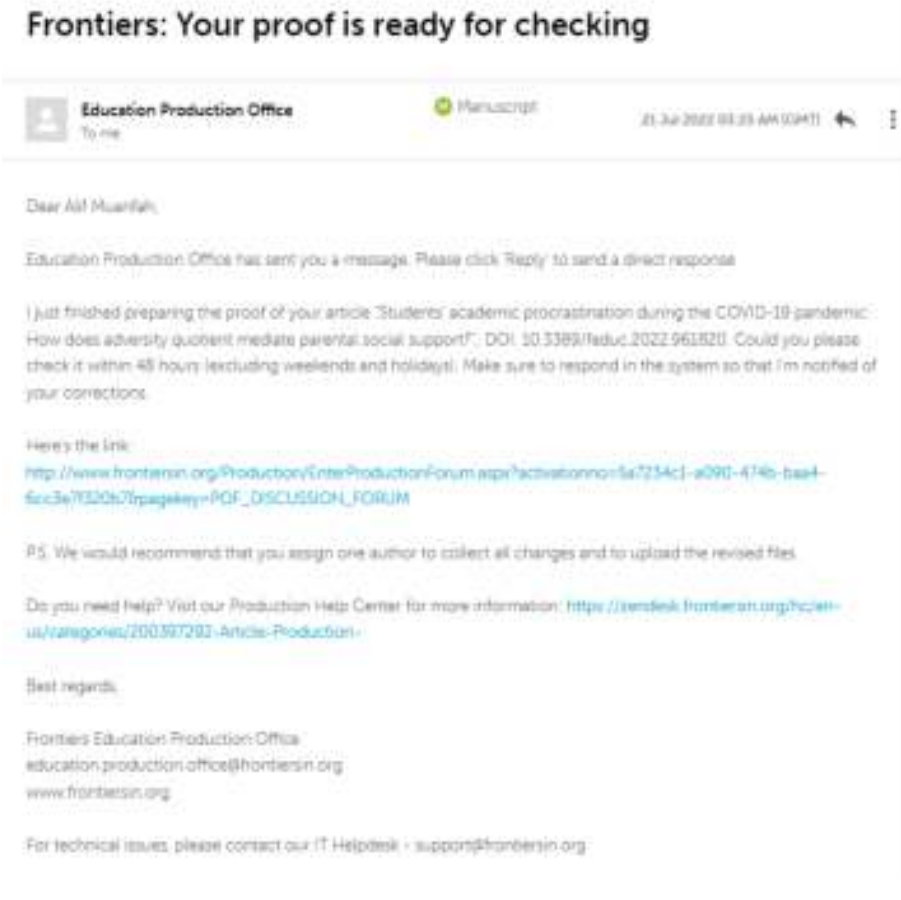
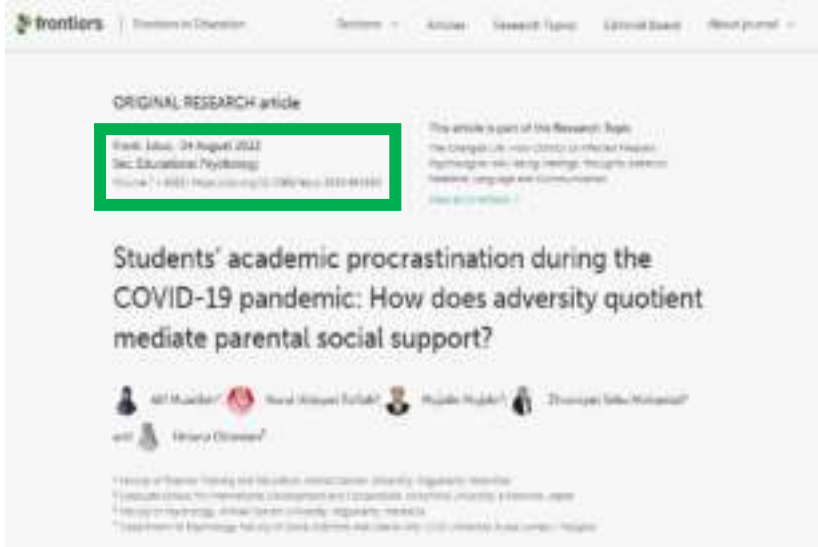
We are contacting you regarding your recently accepted manuscript.

We have started typesetting your manuscript; however, we noticed that Table 6 caption and table was required but the file has not been provided. To complete the production of your proof, can you please provide the Table 6 as soon as possible. Thank you very much.

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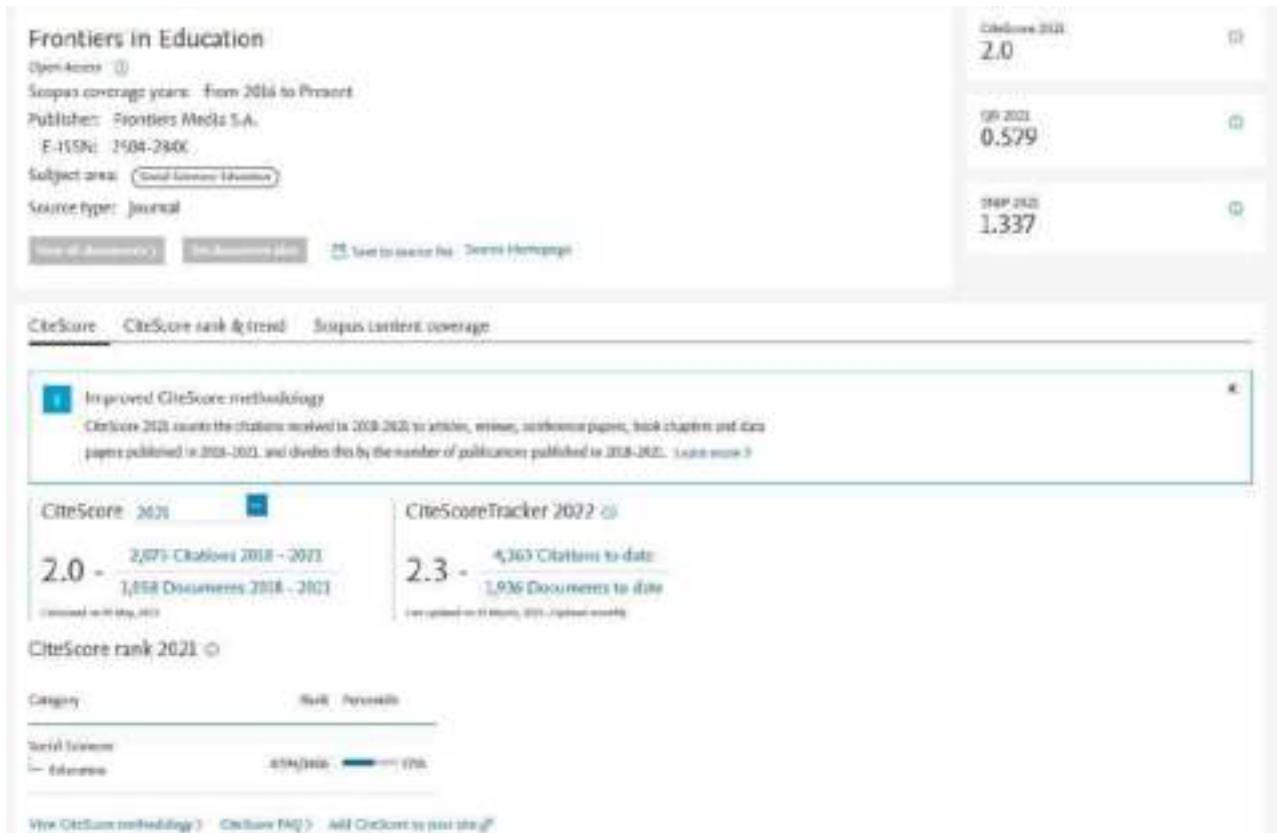
If your article is already in preparation, do not make other changes and request us to remove the Author's Proof for any corrections.

Best Regards,
 Frontiers Production

13	14 Juli 2023	Alif Muarifah mengirimkan revisi table (ditampilkan pada Lampiran 4)
14	21 Juli 2023	<p>Permintaan untuk <i>proof checking</i> kepada semua penulis</p>  <p>Frontiers: Your proof is ready for checking</p> <p>Education Production Office To me</p> <p>Manuscript</p> <p>21 Jul 2023 08:29 AM GMT+7</p> <p>Dear Alif Muarifah,</p> <p>Education Production Office has sent you a message. Please click Reply to send a direct response.</p> <p>I just finished preparing the proof of your article "Students' academic procrastination during the COVID-19 pandemic: How does adversity quotient mediate parental social support?". DOI: 10.3389/feduc.2022.961820. Could you please check it within 48 hours (excluding weekends and holidays). Make sure to respond in the system so that I'm notified of your corrections.</p> <p>Here's the link: http://www.frontiersin.org/Production/EnterProductionForum.aspx?activationno=fa7234c1-a090-4746-baaf-f4c3e70320b7&pagekey=PDF_DISCUSSION_FORUM</p> <p>P.S. We would recommend that you assign one author to collect all changes and to upload the revised files.</p> <p>Do you need help? Visit our Production Help Center for more information: https://support.frontiersin.org/hc/en-us/categories/200397293-Article-Production</p> <p>Best regards,</p> <p>Frontiers Education Production Office education-production-office@frontiersin.org www.frontiersin.org</p> <p>For technical issues, please contact our IT Helpdesk - support@frontiersin.org</p>
15	23 Juli 2023	Semua penulis memberikan konfirmasi <i>proof checking</i> (ditampilkan pada Lampiran 5)
16	4 Agustus 2023	<p>Naskah artikel diterbitkan (Naskah yang sudah terbit ditampilkan pada Lampiran 6)</p>  <p>frontiers Frontiers in Education</p> <p>ORIGINAL RESEARCH article</p> <p>Frontiers 24 August 2022 Sec. Educational Psychology Volume 7 Article ID 961820 https://doi.org/10.3389/feduc.2022.961820</p> <p>This article is part of the Research Topic The Challenge of Living Through an Infectious Disease Psychological Well-being, Resilience, Thoughts, Beliefs, Resilience, Coping and Communication View all 10 articles</p> <p>Students' academic procrastination during the COVID-19 pandemic: How does adversity quotient mediate parental social support?</p> <p>Alif Muarifah, Nurul Hidayatullah, Pujiati Pujiati, Theresia Sila, Widiastuti, and Helena Christen</p> <p>Frontiers in Education www.frontiersin.org ISSN 2296-7489 © 2022 Muarifah, Hidayatullah, Pujiati, Sila, Widiastuti and Christen. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY).</p>

Profil Jurnal

1. Scopus SJR 0.579



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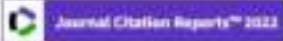
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About

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Journal Website	Visit Site	Publisher Website	Visit Site
1st Year Published	2016	Frequency	Continuous publication
Issues Per Year	1	Country / Region	SWITZERLAND
Primary Language	English	Avg. Number of Weeks from Submission to Publication	11
Article DOIs	Yes	Full-Text Formats	PDF, HTML, EPUB, XML

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Lampiran 1.
Naskah Artikel Awal
Submit

1 Students' academic procrastination during the COVID-19 pandemic: 2 How does adversity quotient mediate parental social support?

3
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16 **Keywords:** Academic procrastination¹, adversity quotient², COVID-19³, parental support⁴,
17 school educations

18 Abstract

19 COVID-19 has had a widespread impact upon all aspects of life. To sever the virus transmission chain,
20 numerous restrictive attempts have been undertaken by the government. In the education sector,
21 particularly, one of the attempts is to apply certain learning models. For instance, online model has
22 been used in place of face-to-face one across all academic and non-academic services. Educators have
23 faced a number of obstacles, including academic procrastination. Academic procrastination itself refers
24 to intentionally putting off working on an assignment, which is negatively influential to academic
25 achievement. The aim of this study was to examine the role of parental support in academic
26 procrastination with the mediation of adversity quotient. The subjects consisted of 256 state Madrasah
27 Aliyyah students in Magelang in the age range 15–18 years ($M = 16.53$, $SD = 1.009$). Data collection
28 employed the academic procrastination scale, parental support scale, and adversity quotient scale. Data
29 analysis used descriptive statistics and structural equation modelling (SEM) with the aid of IBM SPSS
30 23 and AMOS Graphics 26. The research results showed that all variables fell into the medium
31 category. Parental social support had a negative role in academic procrastination and a positive one in
32 adversity quotient. Meanwhile, adversity quotient had a negative role in academic procrastination and
33 a significant role as a mediator in the relationship between parental support and academic
34 procrastination. Therefore, in suppressing academic procrastination, parental support is required to
35 increase students' adversity quotient. Special attention from parents to students is thus critical during
36 the COVID-19 pandemic, with the mediation of adversity quotient.

37 1. Introduction

38 During the COVID-19 pandemic, learning and teaching activities are experiencing systemic
39 alterations from offline to online-based. Nearly all over the world students are facing the challenges of
40 independent learning, learning on the computer, and a lack of contact with teachers and peers, thereby
41 demanding sound time management (Pelikan et al., 2021). This learning model is unprecedented in

42 educational systems around the globe, and this is particularly true in Indonesia where understanding of
43 IT has yet to be equal on all lines. Online learning model requires thorough, systematic preparation,
44 but the state of emergency in which it is implemented has spawned a multitude of issues, both academic
45 and non-academic. A frequent issue among them is academic procrastination, which refers to students'
46 purposeful deferment in various academic activities, which is extensively impactful to their future
47 (Wiguna et al., 2020; Pelikan et al., 2021; Tian et al., 2021; Laia et al., 2022). Online learning is linked
48 to postponement of completing tasks related to learning (Steel and Klingsieck, 2016). Students
49 intentionally hold up turning in tasks although it may lead to negative consequences (Goroshit, 2018).
50 It results in students' low final grades (Kljajic and Gaudreau, 2018). It is linked to weak learning
51 dedication, low learning performance, and poor learning objectives achievement (Tian et al., 2021).
52 Online learning as a response to Coronaviruse Disease-19 has caused a decline in students' mental
53 wellbeing and led to issues such as peer relationship and emotional ones (Wiguna et al., 2020). There
54 has been a significant rise in academic procrastination among students (Tezer et al., 2020; Pelikan et
55 al., 2021; Buana, Dharmayana and Sholihah, 2022). Students put off completing academic work due
56 to a number of reasons, do and submit tasks late, and face difficulties in time management in learning
57 (Laia et al., 2022).

58 Despite realizing that it has negative effects, students still engage in academic procrastination
59 for various reasons, internal or external, but due to the pandemic situation, some teachers consider it
60 as normal and understandable. If the indiscipline habit is left uncorrected, it will result in bad mentality
61 for students' psychological development (Zacks and Hen, 2018; Amir et al., 2020; Maqableh and Alia,
62 2021; Peixoto et al., 2021; Pelikan et al., 2021; Prasetyanto, Rizki and Sunitiyoso, 2022). Academic
63 procrastination is spurred by certain situations, including task difficulty and low task attractiveness,
64 being compelled to learn autonomously, and unattractive teacher characteristics (Klingsieck, 2013).
65 Students experience difficulties in learning and managing the learning process and have a lack of
66 independence and maturity, thereby finding it difficult to motivate themselves, especially when faced
67 with difficult, lengthy learning tasks (low adversity quotient) (Zacks and Hen, 2018). Other reasons
68 include unattractive way of delivering materials, difficulty adapting to online learning, connection
69 instability, and extra financial burden to access the Internet (Zacks and Hen, 2018; Amir et al., 2020;
70 Maqableh and Alia, 2021; Peixoto et al., 2021; Pelikan et al., 2021; Prasetyanto, Rizki and Sunitiyoso,
71 2022). In addition, there are issues of ineffectively delivered curriculum and a lack of interaction
72 between teacher and student or between student and student (Mohalik and Sahoo, 2020). Students also
73 have a hard time concentrating when learning, psychological problems, and poor time management
74 (Maqableh and Alia, 2021). They are often confused about how to complete their tasks because the
75 instructions are hard to understand (Peixoto et al., 2021). Besides, procrastination can also be the result
76 of laziness to complete the tasks from the teacher and low learning motivation (Pelikan et al., 2021). The
77 following issues are also present: the homework given by the teacher overweights the assignment given
78 during face-to-face meeting; the intensity looking at laptop or handphone screen causes disturbance to
79 health; the conditions at home make it difficult to stay focused; being burdened by other works;
80 vagueness in the teacher's explanation; and difficulty discussing with or asking questions to the teacher
81 (Prasetyanto, Rizki and Sunitiyoso, 2022). Finally, unattractiveness of the online learning model serves
82 as an important factor in the high degree of procrastination during COVID-19 (Latipah, Adi and Insani,
83 2021; Prasetyanto, Rizki and Sunitiyoso, 2022).

84 Existing research on procrastination in online learning during COVID-19 among senior high
85 school students in Indonesia is still limited to the non-Islamic-based school (Latipah, Adi and Insani,
86 2021; Habibi, Hariastuti and Rusijono, 2022; Irawan and Widyastuti, 2022). Studies showed that 47.2%
87 senior high school (SMA) students in Temanggung (Latipah, Adi and Insani, 2021), 34.3% vocational
88 high school (SMK) students in Bojonegoro (Irawan and Widyastuti, 2022), and 652 or 78.6% state
89 senior high school (SMAN) students in Mojokerto engaged in a medium level of procrastination
90 (Habibi, Hariastuti and Rusijono, 2022). Meanwhile, in Indonesia there also exist Islamic-based senior

91 high schools named Madrasah Aliyyah, numbering 9,131 or accounting for 24.6% of all schools at that
92 level (Statistik, 2021; Kementerian Agama, 2022). Madrasah Aliyyah (MA) is a general high school
93 with Islamic character that is administered by the Department of Religious Affairs (Bastari et al., 2018).
94 The curriculum load borne by MA students is higher than the curriculum load borne by both SMA and
95 SMK students. In a madrasah, the load every student must bear is 100% non-Islamic school curriculum
96 plus Islamic school curriculum (Alawiyah, 2014). This difference poses MA students with issues of
97 greater complexity in online learning during COVID-19 than those faced by non-Islamic-based school
98 students (Latipah, Adi and Insani, 2021). The findings by Buana et al. (2022) revealed that in online
99 learning during COVID-19, 40.4% students of state Madrasah Aliyyahs in Bengkulu demonstrated a
100 high level of procrastination, and 28.6% even did a very high level of procrastination. These findings
101 are a stark contrast to the SMA and SMK cases, where the students' procrastination was within the
102 medium category. Currently, research on procrastination in the Madrasah Aliyyah environment during
103 COVID-19 is still minimum. The research by Buana et al. has examined the roles of self-efficacy and
104 emotional intelligence on procrastination, but it was only focused on personal factors (Buana,
105 Dharmayana and Sholihah, 2022).

106 To enrich the literature on academic procrastination during online learning implementation, this
107 research focused on Madrasah Aliyyah and included both external (parental social support) and internal
108 (personal) factors in order to reduce the academic procrastination level. Over the course of COVID-
109 19, online learning took place at home. Therefore, parents' involvement during the learning
110 implementation is critical. Moreover, parents are the most prominent and pivotal figures in the
111 provision of resources for children, hence holding a central place in creating social and emotional
112 contexts (Wray-Lake et al., 2022).

113 1.1. Parental Social Support and Academic Procrastination in Online Learning

114 During COVID-19 in 2021, Indonesia was still implementing online learning across all levels,
115 including senior high school. Throughout the implementation of online learning, students require
116 parental support for smooth learning, both financially and psychologically, since parents have the
117 primary responsibility for their children's education, including in establishing social and emotional
118 communication. Being related to various learning problems during online learning implementation,
119 parental support helps overcome academic procrastination optimally. Although many parents
120 encounter a multitude of difficulties that lead to psychological, social, and financial issues, parental
121 support occupies a core place within a crowded situation, raising students' spirit albeit being under
122 restrictions (Ikeda and Echazarra, 2021; Klootwijk et al., 2021; Maqableh and Alia, 2021). A US-based
123 education longitudinal study on 15,240 ten graders showed that parents' involvement in their children's
124 education, both at home and in school, had a significant effect on the children's learning success
125 (Benner, Boyle and Sadler, 2016). Results of another study on 313 upper secondary school students in
126 Turkey showed that social support from the family contributed to academic procrastination (Erzen and
127 Çikrikci, 2018). Parental support is pivotal and considerably influential to students' social,
128 psychological, and academic functions (Won and Yu, 2018). It was also reported that 177 US parents
129 of children of kindergarten to senior high school age found it difficult to motivate their children to
130 learn online (Garbe et al., 2020). Parental support that is appropriate with students' needs during online
131 learning may take the following forms: Internet facility, material device such as laptop or personal
132 computer, and home with a conducive environment for learning (Maqableh and Alia, 2021).
133 Meanwhile, parental emotional support such as motivational support is grievously needed by students
134 (Ikeda and Echazarra, 2021; Klootwijk et al., 2021). A lack of attention and learning motivation from
135 parents for children are among the most responsible for the high level of academic procrastinatory
136 behavior in children during online learning (Wulandari, Fatimah and Suherman, 2021). Research
137 results reported a significant increase in parental support during online learning from face-to-face

138 learning, where parents felt a sense of responsibility for the online learning process (Wray-Lake et al.,
139 2022).

140 However, many parents in Indonesia were found to be faced with psychological, social, and
141 financial problems during COVID-19 (Kaligis, Indraswari and Ismail, 2020; Alam et al., 2021;
142 Anindyajati et al., 2021). Problems of anxiety and stress for the family were also emerging
143 (Anindyajati et al., 2021). Various hoaxes had triggered panic and fear (Kaligis, Indraswari and Ismail,
144 2020). Problems also encompassed family's financial problems caused by the social distancing policy,
145 including decreased amount of income, increased rate of unemployment, and difficulty finding new
146 job, all of which had undermined parental social support for children (Alam et al., 2021). Study results
147 revealed that parents with children attending school during the early stage of COVID-19 in Indonesia
148 were suffering from a moderate stress level due to having to allocate time for working from home and
149 assisting their children in studying from home at the same time. Parents were also overwhelmed by
150 their children's assignments, and this was especially true for mothers, whose time was already mostly
151 spent doing household chores and working from home (Susilowati and Azzasyofia, 2020). Thorell et
152 al. (2021) discovered that online learning had a negative effect on parents' lives as in increased stress
153 levels due to high workloads, fear that their children's academic performance would drop, social
154 isolation, and domestic conflict.

155 1.2. The Effects of Parental Support and Adversity Quotient on Academic Procrastination

156 Parental support affects students' adversity quotient and subsequently academic
157 procrastination. Parents, who are responsible for their children's education and future, feel called to
158 think about how their children will reach success in learning, so they try to provide their children with
159 social and emotional support well and openly. This support raises the children's motivation and spirit
160 to put an effort to reach success, giving them the strength to take on challenges and hold on in the face
161 of obstacles (Hidayati and Taufik, 2020). Adversity quotient is how well an individual persists in
162 hardships and turns difficulties into opportunities (Stoltz, 2006). Results of a qualitative study on
163 students from low-income (poor) families and students falling victim to domestic violence or broken
164 home showed that parents had a strong association with adversity quotient development because the
165 family is a motivator for students' improved endurance (Hidayati and Taufik, 2020). Therefore, parents
166 play an essential role in improving students' adversity quotient. This is supported by the results of a
167 study on 232 freshmen in Makassar, which revealed that parental support had a role in forming the
168 ability to cope with academic obstacles during the COVID-19 period (Sihotang and Nugraha, 2021).
169 Parental support may take the forms of giving the children opportunities to make decisions, providing
170 a clear, consistent guide to their expectations and rules for the children, and giving the students
171 adaptive and constructive responses to face academic obstacles (Sihotang and Nugraha, 2021).

172 Adversity quotient is essential for students during COVID-19, given that during online learning
173 senior high school students in Indonesia are facing obstacles and barriers that may influence their
174 learning quality and outcomes (Amir et al., 2020; Prasetyanto, Rizki and Sunitiyoso, 2022). With
175 adversity quotient, students will be able to take situations under control, take advantage of
176 opportunities, and have higher success chances (Juwita and Usodo, 2020). Research also unveiled that
177 academic procrastination was influenced by adversity quotient (Tuasikal, Rumahlewang and Tutupary,
178 2019). It stated that the higher the student's adversity quotient the lower the procrastination tendency,
179 and the lower the student's adversity quotient the higher the procrastination tendency (Tuasikal,
180 Rumahlewang and Tutupary, 2019).

181 Students need adversity quotient in order to successfully deal with problems and fulfill their
182 tasks and responsibilities in online learning (Safi'i et al., 2021) as well as to tackle academic issues
183 (Parvathy and Praseeda, 2014). Students with high adversity quotients have a better self-motivation
184 ability, while those with low adversity quotients will tend to give up and yield easily, display

185 pessimism, and exhibit a negative attitude (Stoltz, 2006). Earlier research findings showed that
 186 adversity quotient affected students' ability to adapt to online learning from offline learning, not
 187 excluding the ability to access and use online learning to establish a learning standard (Safi'i et al.,
 188 2021).

189 1.3. Present Study

190 According to the explanation above, especially in the case of Madrasah Aliyyah students, online
 191 learning has caused high levels of academic procrastinatory behavior. Earlier studies have explained
 192 that parental support had a role in adversity quotient and academic procrastination, while adversity
 193 quotient had a role in academic procrastination. It can be concluded that parental support contributes
 194 to students' adversity quotient and subsequently affects academic procrastination. Thus far, there is
 195 minimal research on the mediating role of adversity quotient in the relationship between parental
 196 support and academic procrastination. Therefore, the goal pursued by this research was to explain how
 197 parental support influences academic procrastination with the mediation of adversity quotient in the
 198 case of Madrasah Aliyyah students. The hypotheses model of this research is presented in Figure 1,
 199 while the hypotheses themselves are as follows:

200 H₁: Parental support has a negative role in academic procrastination.

201 H₂: Parental support has a positive role in adversity quotient.

202 H₃: Adversity quotient has a negative role in academic procrastination.

203 H₄: Adversity quotient has a mediating role in the relationship between parental support and
 204 academic procrastination.

205 **Figure 1. Research hypotheses model**

206 2. Methods

207 2.1. Research Participants and Procedure

208 As many as 256 students of state Madrasah Aliyyahs in Magelang who were aged 15–18 years
 209 ($M = 16.53$, $SD = 1.009$), consisting of 131 male and 125 female students, participated in this research.
 210 The participants were recruited by proportionate random sampling. This research acquired a research
 211 permit from Universitas Ahmad Dahlan (F4/387/PS44/D.66/TV/2021) as well as from schools in which
 212 this research was conducted.

213 The researchers coordinated with guidance and counseling teachers to access participants'
 214 phone numbers and form a WhatsApp group. Data collection was carried out with the aid of Google
 215 Forms application. The researchers provided information on the research and an instruction on how to
 216 complete the questionnaire via the WhatsApp group. Participants' informed consent was asked ahead
 217 of the Google Forms questionnaire completion. This research was conducted in July 2021.

218 2.2. Instruments

219 The procrastination scale was formulated using a 24-item Likert scale ($\alpha = 0.803$) in reference
 220 to the procrastination signs according to Ferrari Jonson and McCown: students put off starting and
 221 finishing a task, students complete a task late, there is a gap between the plan and the actual
 222 performance, and students prefer doing a more pleasurable activity (Ferrari, Johnson and McCown,
 223 1995). Four answer alternatives were used: SA (strongly agree), A (agree), D (disagree), and SD
 224 (strongly disagree).

225 The parental social support scale was composed of 28 items ($\alpha = 0.903$). It took on the form of
 226 a Likert scale that was formulated in reference to the social support aspects according to Sarafino and
 227 Smith; emotional support (a. empathy, b. comforting support); companionship support (a. spending

228 time together, b. having a mutually supportive companionship bond); information support (a. receiving
 229 suggestions and advice, b. acquiring information); and instrumental support (a. non-material direct aid,
 230 b. action direct aid) (Sarafino and Smith, 2014). Four answer alternatives were used, namely SA
 231 (strongly agree), A (agree), D (disagree), and SD (strongly disagree).

232 Lastly, the adversity quotient scale was a Likert scale with 22 items ($\alpha = 0.863$). This scale
 233 referred to Stolz's dimensions, namely control, ownership, reach, and endurance (Stoltz, 2006). Five
 234 answer alternatives were used, namely SA (strongly agree), A (agree), N (neutral), D (disagree), and
 235 SD (strongly disagree).

236 2.3. Data Analysis

237 Statistical-descriptive analysis was employed to gain an overview of each research variable.
 238 Structural equation modeling (SEM) was applied to assess the mediating role of adversity quotient in
 239 the relationship between parental support and academic procrastination. The goodness of fit index was
 240 evaluated using the following indices: probability, DF, CMIN/DF, GFI, NFI, CFI, IFI, TLI, and
 241 RMSEA (Kline, 2015). This research used IBM SPSS 23 and AMOS Graphics 26 for data analysis.
 242

243 3. Results

244 3.1. Variable descriptive data

245 The results of this research showed that the scores of academic procrastination, parental
 246 support, and adversity quotient were within the 30–88, 51–103, and 47–85 ranges, respectively. Based
 247 on the mean scores and frequency distributions of the variables, most of the participants engaged in a
 248 medium level of academic procrastination (69.92%), perceived a medium level of parental support
 249 (66.02%), and had adversity quotient at the medium level (67.97%). The descriptive data of the
 250 variables are provided in Table 1, and the frequency distributions of the variables are presented in
 251 Table 2.

252 **Table 1. Descriptive Data of the Variables**

253 **Table 2. Frequency Distributions of the Variables**

254 3.2. Goodness of Fit

255 The overall model fit is presented in Table 3. Based on Table 3, the Goodness of Fit index showed
 256 good fit according to DF, CMIN/DF, GFI, NFI, IFI, and TLI and close fit according to RMSEA.
 257 Meanwhile, the sig. probability demonstrated marginal fit, which was still acceptable. Therefore, the
 258 model goodness of fit assumption used in this research was accepted.

259 **Table 3. Model Goodness of Fit Test**

260 3.3. Hypotheses testing

261 The hypotheses were tested to determine whether parental support had a direct effect on
 262 academic procrastination or whether it had an indirect effect after mediation by adversity quotient. The
 263 analysis results are shown in Table 4. The findings revealed that parental support had a significant
 264 negative role in academic procrastination ($\beta = -0.299$; $p < 0.01$), parental support had a significant
 265 positive role in adversity quotient ($\beta = 0.411$; $p < 0.01$), adversity quotient had a significant negative
 266 role in academic procrastination ($\beta = -0.339$; $p < 0.01$), and adversity quotient had a mediating role in
 267 the relationship between parental support and academic procrastination ($\beta = -0.139$; $p < 0.01$). Parental
 268 support had a greater role in academic procrastination after mediation by adversity quotient ($\beta = -0.438$;
 269 $p < 0.01$).

270 **Table 4. Hypotheses Analysis Results**

271 **Figure 1. Parental Support-Adversity Quotient-Academic Procrastination Model**

272 The results of this research also showed that every aspect of the variable had a significant
 273 correlation ($p < 0.01$), as can be seen in Table 5. Parental support had a significant positive role in each
 274 adversity quotient aspect and a significant negative role in each academic procrastination aspect,
 275 whereas adversity quotient had a negative role in all academic procrastination aspects. Parental support
 276 had the greatest role in the control aspect of adversity quotient. Both parental support and adversity
 277 quotient had the greatest roles in the academic procrastination aspects "putting off starting and
 278 completing a task" and "a gap between the plan and the actual performance". The results of the
 279 regression test on the aspects of the variables can be seen in Table 6.

280 **Table 5. Correlation between Variable Aspects**

281 **Note:**

282 $p < 0.01$.

283 Academic procrastination aspects:

284 PR.1: Putting off starting or completing a task; PR.2: Completing a task late; PR.3: A gap between
 285 the plan and the actual performance; and PR.4: Performing a more pleasurable activity.

286 Parental support aspects:

287 PS.1: Emotional support; PS.2: Companionship Support; PS.3: Information Support; and PS.4:
 288 Instrumental support.

289 Adversity quotient aspects:

290 AQ.1: Self-regulation; AQ.2: Endurance; AQ.3: Reach; and AQ.4: Ownership

291 **Table 6. Results of Regression Test on the Aspects of the Variables**

292 **4. Discussion**

293 This research's findings demonstrated that the majority of the Madrasah Aliyyah participants
 294 engaged in academic procrastination during online learning in the COVID-19 pandemic. Meanwhile,
 295 previous research found that academic procrastination among state Madrasah Aliyyah students in
 296 Bengkulu fell into the high category due to minimum knowledge and skills for using learning media,
 297 difficulties participating in online learning because of Internet access issues, and, in the case of delay
 298 in assignment submission, poor understanding of the materials and concepts delivered by the teacher
 299 during online learning (Buana, Dharmayana and Sholihah, 2022). This gap might be attributable to the
 300 demographic aspect related to Internet access. As reported by UNICEF, only 54.49% of households in
 301 Bengkulu Province were with Internet access, while in Central Java Province of which Magelang is
 302 part, the figure was 66.73% (UNICEF, 2020). The previously reported limitations in access to
 303 affordable Internet services and suitable digital devices have caused it difficult for the larger portion
 304 of students to take part in the online learning process (UNICEF, 2020).

305 These findings were in line with previous studies that were conducted on SMA and SMK
 306 students in the same province this research was conducted, which reported medium levels of academic
 307 procrastination (Latipah, Adi and Insani, 2021; Habibi, Hariastuti and Rusijono, 2022). This portrays
 308 that the greater curricular burden borne by MA students than by their SMA and SMK peers in Central
 309 Java did not necessarily make the former engage in procrastination to a greater degree than the latter.
 310 A further investigation concerning this matter is thus needed since it may also be influenced by other
 311 factors.

312 The next finding was that the majority of the students perceived their parents' support to be
 313 within the moderate category, suggesting that parental support for MA students in the implementation
 314 of online learning was fairly good. This finding were in line with previous research, which reported a
 315 moderate level of parental support after an increase from when learning was conducted face-to-face

316 (Wray-Lake et al., 2022). It was also found that most of the students had a moderate level of adversity
317 quotient and that many were even found to demonstrate a high level of adversity quotient. This depicts
318 that essentially students had fairly good adversity quotient (Wray-Lake et al., 2022).

319 This research revealed that parental support had a negative role in academic procrastination.
320 This explains that the better the parental support perceived by the students, the lower the academic
321 procrastination. Contrarily, the lower the parental support was in the students' perception, the higher
322 the academic procrastination level. A research work conducted pre-pandemic provided a support for
323 this finding, stating that parental support could suppress academic procrastinatory behavior (Erzen and
324 Çikrikci, 2018). This means that both during and prior to the COVID-19 pandemic, parental support
325 played a role in academic procrastination. This result also confirmed the finding that parents held a key
326 role in students' learning process, particularly during COVID-19 (Wray-Lake et al., 2022).

327 Every aspect of academic procrastination, parental support, and adversity quotient also
328 demonstrated correlation. Parental support contributed negatively to all academic procrastination
329 aspects. Parental support, in particular instrumental support, had the most significant role in the delay
330 starting or completing a task. Instrumental support itself refers to the provision of financial aids,
331 material resources, or necessary services (Murray, Kosty and Hauser-McLean, 2016). The results
332 showed that support in the forms of financial aids, devices, and services helped students suppress the
333 rate at which they put off starting and completing a task. This is because, during the online learning
334 process, students needed parental support for smooth learning in terms of material (money to buy
335 Internet quotas), device (laptop or personal computer), or home condition (a conducive environment
336 for learning) (Maqableh and Alia, 2021).

337 In addition, parental support was also found to positively contribute to adversity quotient. This
338 explains that the better the parental support perceived by students the higher the adversity quotient, and
339 vice versa. This finding is in parallel with the finding of the qualitative study by (Hidayati and Taufik,
340 2020), according to which the social support from the family served as a supplementary factor in
341 adversity quotient. It was also supported by another study on freshmen, according to which parental
342 support had a role in forming the ability to cope with academic obstacles during COVID-19 (Sihotang
343 and Nugraha, 2021). Parental support promotes students' adaptive and constructive responses to
344 academic challenges (Sihotang and Nugraha, 2021). Results of a literature review revealed that the
345 support and encouragement from parents in the forms of praises for the child's performance, progress,
346 and efforts, attention to the child's self and their school performance, and provision of a conducive
347 environment and materials for the child's learning predicted the child's academic achievements (Boonk
348 et al., 2018).

349 According to this study, parental support had the most considerable contribution to the control
350 aspect of adversity quotient. This shows that senior high school students were still in need of parents'
351 aids in controlling their responses in a positive way to cope with online learning difficulties. Senior
352 high school students are adolescents with a higher degree of independence than the previous phases
353 and with a need for self-autonomy (Branje et al., 2021). However, this aspect is still in a developmental
354 stage and thus requires support from parents who serve as the primary support system for these senior
355 high school students (Kagitcibasi, 2013). As stated previously, this research also discovered that all
356 parental support aspects, namely emotional support, companionship support, information support, and
357 instrumental support, were positively correlated with this control aspect of adversity quotient, with the
358 last of the four demonstrating the highest degree of correlation. This shows that fulfilment of learning
359 facilities aided students in controlling their constructive responses to online learning difficulties.
360 Previous research stated that students experienced hardships during online learning due to non-
361 conducive home environments, bad Internet connection, and financial burden for purchasing Internet
362 quotas (Amir et al., 2020; Prasetyanto, Rizki and Sunitiyoso, 2022)

363 Further finding indicated that adversity quotient negatively contributed to academic
364 procrastination. The higher the adversity quotient of the student the lower the academic procrastination,

365 and the lower the adversity quotient the higher the academic procrastination. In other words, adversity
366 quotient helped students respond to difficulties in online learning in a positive way, hence minimizing
367 academic procrastinatory behavior. This finding supported earlier research on 218 state Madrasah
368 Aliyyah students in Pontianak, Indonesia, according to which adversity quotient influenced students'
369 adaptability from offline to online learning, including in terms of the ability to access and use online
370 learning to establish a learning standard (Safi'i et al., 2021). Students with higher adversity quotient
371 found it easier to deal with any problems (Parvathy and Praseeda, 2014). It was also in line with the
372 results by (Tuasikal, Rumahlewang and Tutupary, 2019), which reported that adversity quotient had a
373 negative relationship with academic procrastination in students prior to the COVID-19 pandemic. This
374 explains that in students of senior high school or higher educational levels during or prior to COVID-
375 19, adversity quotient contributed in suppressing academic procrastinatory behavior.

376 Adversity quotient was found to have the highest contribution to students' putting off the start
377 and completion of a task. Students with good adversity have a positive perception as they regard
378 difficulties as opportunities (Stoltz, 2006). On the other hand, negative perception in handling tasks
379 will cause students to be inclined toward delaying tasks completion (Pollack and Herres, 2020).
380 Therefore, adversity quotient reduces the tendency to put off starting or completing a task. In addition,
381 the reach aspect of adversity quotient exhibited the strongest correlation with postponing the start or
382 completion of a task. Students with high adversity quotient had a reach of their problem limits in the
383 event they are facing (Stoltz, 2006). They make improvements across various aspects to prevent the
384 problem from affecting other aspects (Juwita and Usodo, 2020). This explains that students with a
385 focus on overcoming learning difficulties to minimize academic procrastination tend not to cause any
386 other problems. As discovered in previous works, academic procrastination that is left unresolved may
387 lead to other problems, such as low final grades (Kljajic and Gaudreau, 2018) low learning dedication,
388 low learning performance and outcomes (Tian et al., 2021) and decreased life satisfaction and increased
389 psychological stress (Peixoto et al., 2021).

390 This research's findings also demonstrated that adversity quotient had a mediating role in the
391 relationship between parental support and academic procrastination. This means that students' ability
392 to cope with difficulties could be enhanced by parental support when the students themselves had high
393 adversity quotient, hence showing low tendency for academic procrastination. Based on these findings,
394 in conjunction with the existing literature, it is fair to say that parental support drives the decline of
395 academic procrastination (Erzen and Çikrikci, 2018) and at the same time contributes to the rise in
396 adversity quotient (Hidayati and Taufik, 2020; Sihotang and Nugraha, 2021). Furthermore, adversity
397 quotient itself has a role in students' tendency to engage in academic procrastination (Parvathy and
398 Praseeda, 2014; Safi'i et al., 2021).

399 The results presented above have several important implications. They contribute to the
400 literature on COVID-19 impacts on students' academic aspects and their supporting factors. It was
401 revealed that parental support had an effect on academic procrastination and adversity quotient.
402 Therefore, it is deemed necessary to pay special attention to the COVID-19 impact on parents, allowing
403 them to provide support for their children optimally. In addition, there were also results showing that
404 adversity quotient contributed to the relationship between parental support and academic
405 procrastination. These findings have a key contribution to the academic procrastination literature, given
406 that studies that use adversity quotient as a mediator have thus far been minimal.

407 This research came with a number of limitations. Uneven distribution of education facilities
408 throughout Indonesia might have influenced the research results. This study was convened only to
409 subjects in Magelang, and Madrasah Aliyyah students in that. Future studies may be conducted at
410 international schools and with the involvement of subjects in a wider area in Indonesia. Other internal
411 and external factors may be examined in greater depth in future works since this study was restricted
412 only to parental support and adversity quotient. Moreover, descriptive data of parents' situations (e.g.,

413 occupation, educational status, and income) had yet to be revealed in this research. Hopefully future
414 research may explain these data.

415 **5. Conclusion**

416 This study found that parental support negatively contributed to academic procrastination and
417 negatively contributed to adversity quotient. Meanwhile, adversity quotient negatively contributed to
418 academic procrastination and played a mediating role in the relationship between parental support and
419 academic procrastination. This research also discovered that each aspect of the variables demonstrated
420 significant correlation. Finally, both parental support and adversity quotient could negatively predict
421 every aspect of academic procrastination

422 **Conflict of Interest**

423 The authors declare that the research was conducted in the absence of any commercial or financial
424 relationships that could be construed as a potential conflict of interest.

425 **Data Availability Statement**

426 The data that supports the results of this work is available from the corresponding author, SR
427 (alif.muarifah@pgpauud.uad.ac.id), upon reasonable request.

428 **Author Contributions**

429 Conceptualization: A.M. Data curation, A.M., N.H.R, and F.O. Formal analysis: M., Z.B.S.M.,
430 N.H.R, and F.O. Investigation, A.M., M., and Z.B.S.M. Methodology: A.M., M., Z.B.S.M and
431 N.H.R; Validation, A.M., M., and Z.B.S.M. Visualization: N.H.R and F.O. Writing—original draft
432 preparation, A.M. Writing—review and editing: A.M., M., Z.B.S.M., N.H.R, and F.O. All authors
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- 579

Supplementary Material

1 Supplementary Tables

Table 1. Descriptive Data of the Variables

Variable	N	Minimum	Maximum	Mean	SD
Academic procrastination	256	30	88	55.96	8.973
Parental support	256	51	103	80.24	9.607
Advercity quotient	256	47	85	66.09	6.486

Table 2. Frequency Distributions of the Variables

Category	Procrastination		Parental support		Advercity quotient	
	Frequency	%	Frequency	%	Frequency	%
Low	43	16.80%	45	17.58%	41	16.02%
Moderate	179	69.92%	169	66.02%	174	67.97%
Hight	34	13.28%	42	16.41%	41	16.02%

Table 3. Model Goodness of Fit Test

No	Goodness of Fit Index	Cut-Off Value	Result	Conclusion
1	Sig. Probability	≥ 0.05	0.011	Marginal Fit
2	Df	> 0	51	Good Fit
3	CMIN/DF	≤ 2.00	1.508	Good Fit
4	GFI	≥ 0.90	0.954	Good Fit
5	NFI	≥ 0.90	0.987	Good Fit
6	CFI	≥ 0.90	0.996	Good Fit
7	IFI	≥ 0.90	0.996	Good Fit
8	TLI	≥ 0.90	0.994	Good Fit
9	RMSEA	≤ 0.08	0.045	Close Fit

Table 4. Hypotheses Analysis Results

Path	Coefficient (β)	P value
<i>Direct effect</i>		
Parental support \rightarrow Academic procrastination	-.299	0.000***
Parental support \rightarrow Adversity quotient	.411	0.000***
Adversity quotient \rightarrow Academic procrastination	-.339	0.000***
<i>Indirect effect</i>		
Parental support \rightarrow Adversity quotient \rightarrow Academic procrastination	-.139	0.000***
<i>Total effect</i>		
Parental support \rightarrow Academic procrastination	-.438	0.000***

Table 5. Correlation between Variable Aspects

	PR.1	PR.2	PR.3	PR.4	PS.1	PS.2	PS.3	PS.4	AQ.1	AQ.2	AQ.3	AQ.4
PR.1	1											
PR.2	0.785	1										
PR.3	0.808	0.717	1									
PR.4	0.709	0.556	0.698	1								
PS.1	-0.403	-0.414	-0.402	-0.421	1							
PS.2	-0.374	-0.368	-0.376	-0.384	0.989	1						
PS.3	-0.357	-0.351	-0.352	-0.367	0.978	0.979	1					
PS.4	-0.330	-0.332	-0.331	-0.339	0.982	0.987	0.980	1				
AQ.1	-0.425	-0.361	-0.399	-0.388	0.406	0.406	0.407	0.415	1			
AQ.2	-0.413	-0.346	-0.396	-0.382	0.391	0.389	0.390	0.399	0.97	1		
AQ.3	-0.429	-0.366	-0.408	-0.372	0.396	0.395	0.399	0.401	0.956	0.935	1	
AQ.4	-0.410	-0.348	-0.402	-0.373	0.396	0.393	0.394	0.405	0.972	0.962	0.948	1

2 Supplementary Figures

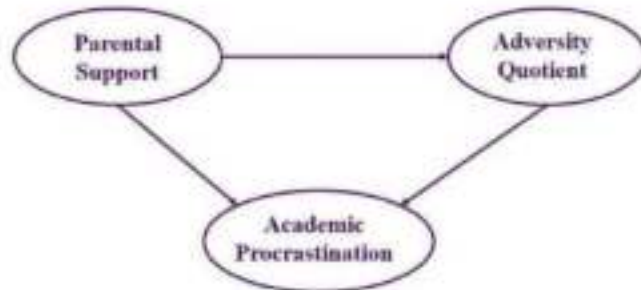


Figure 1. Research hypotheses model

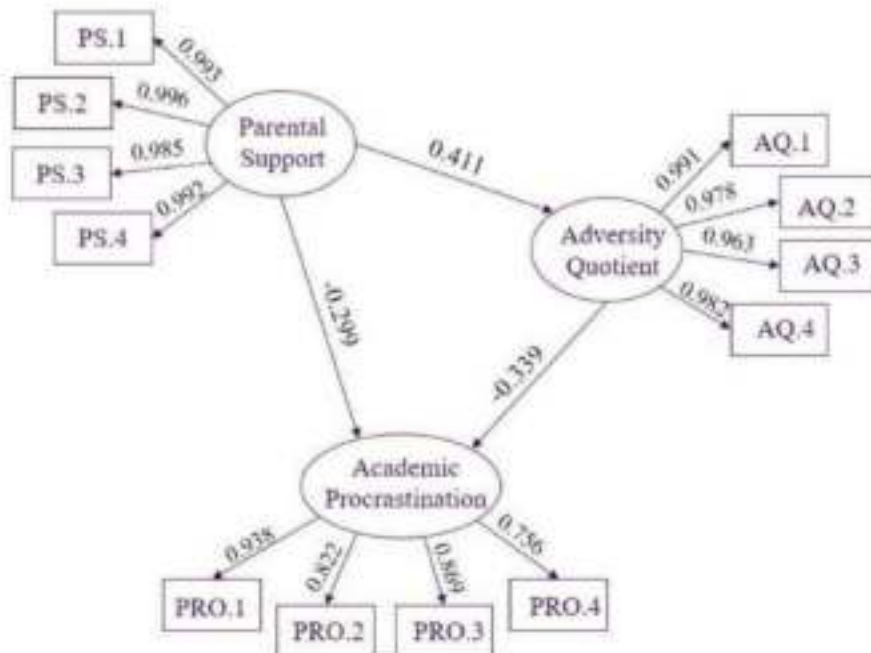


Figure 2. Parental Support-Adversity Quotient-Academic Procrastination Model

Lampiran 2.
Tanggapan Evaluasi
Kepada Reviwer dan
Naskah Setelah Revisi 1

Dear Reviewer 2

Greetings from Indonesia and wishing you a great day with happiness and healthy condition in this era COVID-19.

We really appreciate the time and effort you have dedicated to providing valuable feedback on our manuscript. We are grateful to you for the insightful comments on our paper. We have marked the revised manuscript with the Green color highlight for your review, and Blue color highlight for methods section. Furthermore, we resume the revision for responds to your reviewers' comments, as follows:

1. The writeup in the introduction needs to be significantly organized, and a relation between the paragraphs needs to be established.

Thank you for your advice. We have revised the introduction section according to your suggestions

2- add the limitations of the study, and the future directions.

The limitations of the study, and the future directions are already in the final paragraph of the discussion on the line 424 - 431

3- Add the results of the scale validity and reliability. Are the explanatory factor analysis was performed?

Thank you for your suggestions, we have added the results of validity and reliability in the manuscript to the sub-instruments in each scale.

We did not use exploratory factor analysis, we performed with the Structural Equation Model.

4- Add a table showe the results of the goodness fitne of the tested model.

We have attached the goodness of fit results table in Table 3. Model Goodness of Fit Test to the supplementary file.

5- Are the data collected from the study sample was distributed normary. Add the results of the normality test.

All data are normally distributed. Normality test using Kolmogorov - Smirnov Test. We add the results of the normality test in the manuscript according to your suggestions on the line 265 - 269.

6- Why you do not study the differences between males and femals in the study variables?

Based on the literature obtained, there is no significant difference between males and females in academic procrastination (Liu et al., 2020) and adversity quotient (Nikam and Uplane, 2013). Accordingly we decided not to analyze the differences in variable scores between males and females.

Once again, thank you very much for your cooperation, help, and kindness. We really appreciate your time and look forward to seeing your positive response.

Best Regards

Assoc. Prof. Alif Muarifah, Ph.D.

No	Review	Response
1	The writeup in the introduction needs to be significantly organized, and a relation between the paragraphs needs to be established.	Thank you for your advice. We have revised the introduction section according to your suggestions
2	Add the limitations of the study, and the future directions.	The limitations of the study, and the future directions are already in the final paragraph of the discussion
3	Add the results of the scale validity and reliability. Are the explanatory factor analysis was performed?	<p>Thank you for your suggestions, we have added the results of validity and reliability in the manuscript to the sub-instruments in each scale.</p> <p>We did not use exploratory factor analysis, we performed with the Structural Equation Model.</p>
4	Add a table showe the results of the goodness fitne of the tested model.	We have attached the goodness of fit results table to the supplementary file.
5	Are the data collected from the study sample was distributed normary. Add the results of the normality test.	All data are normally distributed. Normality test using Kolmagorov - Smirnov Test. We add the results of the normality test in the script according to your suggestions on line
6	Why you do not study the differences between males and femals in the study variables?	Based on the literature obtained, there is no significant difference between women and men in academic procrastination (Liu et al., 2020) and adversity quotient (Nikam and Uplane, 2013). So we decided not to analyze the difference in variable scores between women and men

Dear Reviewer 3

Greetings from Indonesia and wishing you a great day with happiness and healthy condition in this era COVID-19.

We really appreciate the time and effort you have dedicated to providing valuable feedback on our manuscript. We are grateful to you for the insightful comments on our paper. We have marked the revised manuscript with the Yellow color highlight for your review and Blue color highlight for methods section. Furthermore, we resume the revision for responds to your reviewers' comments, as follows:

1. The use of English is more tidied up.

Thank you for your advice. We have revised the spelling and grammatical errors according to your suggestions

2. could you please explain the methodology of this research in more detail?

Thank you for your advice. We corrected the methodology section according to your suggestions.

3. in writing references should be adjusted to the style of APA 7th edition.

Thank you for your recommendation. We apologize after discussing with the editor, the reference used is the Harvard Reference Style.

4. The writing still needs to be improved; many typos exist.

Thank you for your advice. We have revised the writing according to your suggestions.

5. you need more explaining the reason for this statement you write. This portrays that the more significant curricular burden is borne by MA students than by their SMA and SMK peers in Central Java did not necessarily make the former engage in procrastination to a greater degree than the latter. So, readers understand the characteristics of the differences between MA and SMA, SMK.

You need more explaining the reason for this statement you write. This portrays that the more significant curricular burden is borne by MA students than by their SMA and SMK peers in Central Java did not necessarily make the former engage in procrastination to a greater degree than the latter. So, readers understand the characteristics of the differences between MA and SMA, SMK.

Thank you for your advice. We have revised the introduction section according to your suggestions on the line 93-99.

Once again, thank you very much for your cooperation, help, and kindness. We really appreciate your time and look forward to seeing your positive response.

Best Regards

No	Review	Response
1	The use of English is more tidied up.	Thank you for your advice. We have revised the introduction section according to your suggestions
2	Could you please explain the methodology of this research in more detail?	We corrected the methodology section according to your suggestions, because Reviewer 2 gave suggestions, also in the methodology section we marked it with blue highlights.
3	in writing references should be adjusted to the style of APA 7th edition.	Thank you for your input. We apologize after discussing with the editor, the reference used is the Harvard Reference Style.
4	The writing still needs to be improved; many typos exist.	Thank you for your advice. We have revised the introduction section according to your suggestions
5	you need more explaining the reason for this statement you write. This portrays that the more significant curricular burden is borne by MA students than by their SMA and SMK peers in Central Java did not necessarily make the former engage in procrastination to a greater degree than the latter. So, readers understand the characteristics of the differences between MA and SMA, SMK.	Thank you for your advice. We have revised the introduction section according to your suggestions on line

1 Students' academic procrastination during the COVID-19 pandemic: 2 How does adversity quotient mediate parental social support?

3
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15 **Keywords:** Academic procrastination¹, adversity quotient², COVID-19³, parental support⁴,
16 school educations

17 Abstract

18 COVID-19 has had a widespread impact on all aspects of life. The government has undertaken
19 numerous restrictive attempts to sever the virus transmission chain. In the education sector, one of the
20 attempts is to apply certain learning models. For instance, the online model has been used in place of
21 the face-to-face one across all academic and non-academic services. Educators have faced several
22 obstacles, including academic procrastination. Academic procrastination refers to intentionally putting
23 off working on an assignment, which negatively influences academic achievement. This study aimed
24 to examine the role of parental support in academic procrastination with the mediation of the adversity
25 quotient. The subjects consisted of 256 state Madrasah Aliyah students in Magelang aged 15–18 years
26 ($M = 16.53$, $SD = 1.009$). Data collection employed the academic procrastination scale, parental
27 support scale, and adversity quotient scale. Data analysis used descriptive statistics and structural
28 equation modeling (SEM) with the aid of IBM SPSS 23 and AMOS Graphics 26. The research results
29 showed that all variables fell into the medium category. Parental social support had a negative role on
30 academic procrastination and a positive one on adversity quotient. Meanwhile, the adversity quotient
31 had a negative role in academic procrastination and a significant role as a mediator in the relationship
32 between parental support and academic procrastination. Therefore, parental support is required to
33 increase students' adversity quotient in suppressing academic procrastination. Special attention from
34 parents to students is thus critical during the COVID-19 pandemic, with the mediation of adversity
35 quotient.

36 1. Introduction

37 During the COVID-19 pandemic, learning and teaching activities are experiencing systemic
38 alterations from offline to online-based. Nearly all over the world, students face the challenges of
39 independent learning, learning on the computer, and a lack of contact with teachers and peers, thereby
40 demanding sound time management (Pelikan et al., 2021). This learning model is unprecedented in
41 educational systems around the globe, and this is particularly true in Indonesia, where understanding

of IT has yet to be equal on all lines. The online learning model requires thorough, systematic preparation, but the state of emergency in which it is implemented has spawned a multitude of issues, both academic and non-academic. A frequent issue among them is academic procrastination, which refers to students' purposeful deferment in various academic activities, which is extensively impactful on their future (Wiguna et al., 2020; Pelikan et al., 2021; Tian et al., 2021; Laia et al., 2022). There has been a significant rise in academic procrastination among students (Tezer et al., 2020; Pelikan et al., 2021; Buana, Dharmayanti and Sholihah, 2022). The phenomenon of academic procrastination during the online learning policy is confirmed by previous studies that suggest that online learning is linked to the postponement of completing tasks related to the learning (Steel and Klingsieck, 2016). Students procrastinate, although it may lead to negative consequences (Goroshit, 2018). It results in students' low final grades (Kljajic and Gaudreau, 2018). Students put off completing academic work for several reasons, do not submit tasks late, and face difficulties in time management in the learning (Laia et al., 2022). If the indiscipline habit is left uncorrected, it will result in a bad mentality for students' psychological development (Zacks and Hen, 2018; Amir et al., 2020; Maqableh and Alia, 2021; Peixoto et al., 2021; Pelikan et al., 2021; Prasetyanto, Rizki and Sumityoso, 2022).

Despite realizing that it has negative effects, students still engage in academic procrastination for internal or external reasons. Still, due to the pandemic situation, some teachers consider it normal and understandable. Some factors associated with academic procrastination are weak learning dedication, low learning performance, and poor learning objectives achievement (Tian et al., 2021). Academic procrastination is spurred by certain situations, including task difficulty and low task attractiveness, being compelled to learn autonomously, and unattractive teacher characteristics (Klingsieck, 2013). Students experience difficulties in learning and managing the learning process and lack independence and maturity, thereby finding it difficult to motivate themselves, especially when faced with difficult, lengthy learning tasks (low adversity quotient) (Zacks and Hen, 2018). Other reasons include the unattractive way of delivering materials, difficulty adapting to online learning, connection instability, and extra financial burden to access the Internet (Zacks and Hen, 2018; Amir et al., 2020; Maqableh and Alia, 2021; Peixoto et al., 2021; Pelikan et al., 2021; Prasetyanto, Rizki and Sumityoso, 2022). In addition, there are issues of ineffectively delivered curriculum and a lack of interaction between teacher and student or between student and student (Mohalik and Sahoo, 2020). Students also have difficulty concentrating when learning, psychological problems, and poor time management (Maqableh and Alia, 2021). They are often confused about completing their tasks because the instructions are hard to understand (Peixoto et al., 2021). Besides, procrastination can also result from laziness in completing the tasks from the teacher and low learning motivation (Pelikan et al., 2021). The following issues are also present: the homework given by the teacher overweight's the assignment given during face-to-face meetings; the intensity of looking at a laptop or handphone screen causes disturbance to health; the conditions at home make it difficult to stay focused; being burdened by other works; vagueness in the teacher's explanation; and difficulty discussing with or asking questions to the teacher (Prasetyanto, Rizki and Sumityoso, 2022). Finally, the unattractiveness of the online learning model serves as an important factor in the high degree of procrastination during COVID-19 (Latipah, Adi and Insani, 2021; Prasetyanto, Rizki and Sumityoso, 2022).

Following the description above, it is necessary to further scrutiny the students' academic procrastination during the COVID-19 pandemic. However, research among senior high school students in Indonesia is still limited to the non-Islamic-based school (Latipah, Adi and Insani, 2021; Habibi, Hariastuti and Rusjono, 2022; Irawan and Widyastuti, 2022). Studies showed that 47.2% of senior high school (SMA) students in Temanggung (Latipah, Adi and Insani, 2021), 34.3% of vocational high school (SMK) students in Bojonegoro (Irawan and Widyastuti, 2022), and 652 or 78.6% state senior high school (SMAN) students in Mojokerto engaged in a medium level of procrastination (Habibi, Hariastuti and Rusjono, 2022). Meanwhile, in Indonesia, Islamic-based senior high schools named Madrasah Aliyah also exist, numbering 9,131 or accounting for 24.6% of all schools at that level

(Statistik, 2021; Kementerian Agama, 2022). Madrasah Aliyah (MA) is a public high school with an Islamic character administered by the Department of Religious Affairs (Bastari et al., 2018). The curriculum load borne by MA students is higher than that of SMA and SMK students. The public senior high school (SMA) curriculum emphasizes the student's theoretical mastery by providing in-depth general subjects (Putri, 2020). Meanwhile, the vocational high school (SMK) focuses more on students' vocational skills to ensure students' readiness to work in certain work fields (e.g., engineering, cuisine, hospitality, and craft industries, among others) (Putri, 2020). In Islamic high school (madrasah), students should learn Islamic knowledge, characters, and general knowledge like in SMA (Alawiyah, 2014). This difference poses MA students with issues of greater complexity in online learning during COVID-19 than those faced by non-Islamic-based school students (Latipah, Adi and Insani, 2021). Previous studies revealed that in online learning during COVID-19, 40.4% of students of state Madrasah Aliyyahs in Bengkulu demonstrated a high level of procrastination, and 28.6% even did a very high level of procrastination (Buana, Dharmayana and Sholihah, 2022). These findings contrast with the SMA and SMK cases, where the students' procrastination was within the medium category. Research on procrastination in the Madrasah Aliyah environment during COVID-19 is still minimal. Previous studies has examined the roles of self-efficacy and emotional intelligence on procrastination, but it was only focused on personal factors (Buana, Dharmayana and Sholihah, 2022).

To enrich the literature on academic procrastination during online learning implementation, this research focused on Madrasah Aliyah. It included external (parental social support) and internal (personal) factors in reducing academic procrastination. Over the course of COVID-19, online learning took place at home. Therefore, parents' involvement during the learning implementation is critical. Moreover, parents are the most prominent and pivotal figures in the provision of resources for children, hence holding a central place in creating social and emotional contexts (Wray-Lake et al., 2022).

1.1. Parental Social Support and Academic Procrastination in Online Learning

During COVID-19 in 2021, Indonesia still implemented online learning across all levels, including senior high school. Throughout online learning, students require parental support for smooth learning, both financially and psychologically, since parents have the primary responsibility for their children's education, including establishing social and emotional communication. Being related to various learning problems during online learning implementation, parental support helps overcome academic procrastination optimally. Although many parents encounter a multitude of difficulties that lead to psychological, social, and financial issues, parental support occupies a core place within a crowded situation, raising students' spirit albeit being under restrictions (Ikeda and Echazarra, 2021; Klootwijk et al., 2021; Maqableh and Alia, 2021). A US-based education longitudinal study on 15,240 ten graders showed that parents' involvement in their children's education, both at home and in school, had a significant effect on the children's learning success (Benner, Boyle and Sadler, 2016). Results of another study on 313 upper secondary school students in Turkey showed that social support from the family contributed to academic procrastination (Erzen and Çikrikci, 2018). Parental support is pivotal and considerably influential to students' social, psychological, and academic functions (Won and Yu, 2018). It was also reported that 177 US parents of kindergarten to senior high school-aged children found it difficult to motivate their children to learn online (Garbe et al., 2020). Parental support appropriate to students' needs during online learning may take the following forms: an Internet facility, a material device such as a laptop or personal computer, and a home with a conducive environment for the learning (Maqableh and Alia, 2021).

Meanwhile, parental emotional support, such as motivational support, is grievously needed by students (Ikeda and Echazarra, 2021; Klootwijk et al., 2021). A lack of attention and learning motivation from parents for children are among the most responsible for the high level of academic procrastinatory behavior in the online learning (Wulandari, Fatimah and Suberman, 2021). Research

138 results reported a significant increase in parental support during online learning from face-to-face
139 learning, where parents felt a sense of responsibility for the online learning process (Wray-Lake et al.,
140 2022).

141 However, many parents in Indonesia were found to be faced with psychological, social, and
142 financial problems during COVID-19 (Kaligis, Indraswari and Ismail, 2020; Alam et al., 2021;
143 Anindyajati et al., 2021). Anxiety and stress problems in the family were also emerging (Anindyajati
144 et al., 2021). Various hoaxes have triggered panic and fear (Kaligis, Indraswari and Ismail, 2020).
145 Problems also encompassed family's financial problems caused by the social distancing policy,
146 including decreased income, increased unemployment rate, and difficulty finding a new job, all of
147 which had undermined parental social support for children (Alam et al., 2021). Study results revealed
148 that parents with children attending school during the early stage of COVID-19 in Indonesia were
149 suffering from a moderate stress level due to having to allocate time for working from home and
150 assisting their children in studying from home at the same time. Parents were also overwhelmed by
151 their children's assignments, especially mothers whose time was already mostly spent doing household
152 chores and working from home (Susilowati and Azzasyofia, 2020). Thorell et al. (2021) discovered
153 that online learning harmed parents' lives by increased stress levels due to high workloads, fear that
154 their children's academic performance would drop, social isolation, and domestic conflict.

155 1.2. The Effects of Parental Support and Adversity Quotient on Academic Procrastination

156 Parental support affects students' adversity quotient and, subsequently academic
157 procrastination. Parents, who are responsible for their children's education and future, feel called to
158 think about how their children will reach success in learning, so they try to provide their children with
159 social and emotional support well and openly. This support raises the children's motivation and spirit
160 to put an effort to reach success, giving them the strength to take on challenges and hold on in the face
161 of obstacles (Hidayati and Taufik, 2020). Adversity quotient is how well an individual persists in
162 hardships and turns difficulties into opportunities (Stoltz, 2006). A qualitative study on students from
163 low-income (poor) families and students falling victim to domestic violence or broken homes showed
164 that parents had a strong association with adversity quotient development because the family is a
165 motivator for students' improved endurance (Hidayati and Taufik, 2020). Therefore, parents play an
166 essential role in improving students' adversity quotient. This is supported by the results of a study on
167 232 first-year students in Makassar, which revealed that parental support had a role in forming the
168 ability to cope with academic obstacles during the COVID-19 period (Sihotang and Nugraha, 2021).
169 Parental support may give the children opportunities to make decisions, provide a clear, consistent
170 guide to their expectations and rules, and give the students adaptive and constructive responses to face
171 academic obstacles (Sihotang and Nugraha, 2021).

172 Adversity quotient is essential for students during COVID-19. Given that during online
173 learning, senior high school students in Indonesia face obstacles and barriers that may influence their
174 learning quality and outcomes (Amir et al., 2020; Prasetyanto, Rizki and Sunitiyoso, 2022). With an
175 adversity quotient, students can take situations under control, take advantage of opportunities, and
176 have higher success chances (Juwita and Usodo, 2020). Research also unveiled that academic
177 procrastination was influenced by the adversity quotient (Tuasikal, Rumahlewang and Tutupary,
178 2019). It stated that the higher the student's adversity quotient, the lower the procrastination tendency,
179 and the lower the student's adversity quotient, the higher the procrastination tendency (Tuasikal,
180 Rumahlewang and Tutupary, 2019).

181 Students need an adversity quotient to successfully deal with problems and fulfill their tasks
182 and responsibilities in the online learning field (Safi'i et al., 2021) and tackle academic issues
183 (Parvathy and Praseeda, 2014). Students with high adversity quotients have a better self-motivation
184 ability. In contrast, those with low adversity quotients will tend to give up and yield easily display

185 pessimism, and exhibit a negative attitude (Stoltz, 2006). Earlier research findings showed that the
 186 adversity quotient affected students' ability to adapt to online learning from offline learning, not
 187 excluding the ability to access and use online learning to establish a learning standard (Safi'i et al.,
 188 2021).

189 1.3. Present Study

190 According to the explanation above, especially in the case of Madrasah Aliyah students, online
 191 learning has caused high levels of academic procrastinatory behavior. Earlier studies have explained
 192 that parental support had a role in adversity quotient and academic procrastination, while adversity
 193 quotient had a role in academic procrastination. It can be concluded that parental support contributes
 194 to students' adversity quotient and subsequently affects academic procrastination. Thus far, there is
 195 minimal research on the mediating role of adversity quotient in the relationship between parental
 196 support and academic procrastination. Therefore, the goal pursued by this research was to explain how
 197 parental support influences academic procrastination with the mediation of adversity quotient in the
 198 case of Madrasah Aliyah students. The hypotheses model of this research is presented in Figure 1,
 199 while the hypotheses themselves are as follows:

200 H₁: Parental support has a negative role in academic procrastination.

201 H₂: Parental support has a positive role in the adversity quotient.

202 H₃: Adversity quotient has a negative role in academic procrastination.

203 H₄: Adversity quotient has a mediating role in the relationship between parental support and
 204 academic procrastination.

205 **Figure 1. Research hypotheses model**

206 2. Methods

207 2.1. Research Participants and Procedure

208 As many as 256 students from two Public Madrasah Aliyahs in Magelang aged 15–18 years (M
 209 = 16.53, SD = 1.009), consisting of 131 male and 125 female students, participated in this research.
 210 The participants were recruited by proportionate random sampling. This research acquired a research
 211 permit from Ahmad Dahlan University (F4/387/PS44/D.66/TV/2021) and from schools where this
 212 research was conducted. The researchers coordinated with school counselors to access participants'
 213 phone numbers and form a WhatsApp group. Data collection was carried out using the Google Forms
 214 application. The researchers provided information on the research and instructions on completing the
 215 questionnaire via the WhatsApp group. Participants' informed consent was asked ahead of the Google
 216 Forms questionnaire completion. Each participant spent around fifteen minutes collecting the data.
 217 This research was conducted in July 2021.

218 2.2. Instruments

219 The procrastination scale was formulated using a 24-item Likert scale ($\alpha = 0.803$) about the
 220 procrastination signs according to Ferrari Jonson and McCown: students put off starting and finishing
 221 a task, students complete a task late, there is a gap between the plan and the actual performance, and
 222 students prefer doing a more pleasurable activity (Ferrari, Johnson and McCown, 1995). Four answer
 223 alternatives were used: SA (strongly agree), A (agree), D (disagree), and SD (strongly disagree). A
 224 higher score indicates a higher level of students' procrastination. The academic procrastination scale
 225 was deemed valid (Chi-square value of 14.58; $p = 0.01$) and reliable (Cronbach's alpha = 0.803), and
 226 having a fit model (CFI = 0.983, GFI = 0.73, TLI = 0.948, RMSEA = 0.098).

The parental social support scale was composed of 28 items. It took on the form of a Likert scale that was formulated about the social support aspects according to Sarafino and Smith; emotional support (a. empathy, b. comforting support); companionship support (a. spending time together, b. having a mutually supportive companionship bond); information support (a. receiving suggestions and advice, b. acquiring information), and instrumental support (a. non-material direct aid, b. action direct aid) (Sarafino and Smith, 2014). Four answer alternatives were used, namely SA (strongly agree), A (agree), D (disagree), and SD (strongly disagree). A higher score indicates higher students' perceived parental support. The parental support scale was deemed valid (Chi-square value of 15.978, $p = 0.00$) and reliable (Cronbach's alpha = 0.863), and having a fit model (CFI = 0.995, GFI = 0.71, TLI = 0.985, RMSEA = 0.099).

Lastly, the adversity quotient scale was a Likert scale with 22 items ($\alpha = 0.863$). This scale referred to Stoltz's dimensions, namely control, ownership, reach, and endurance (Stoltz, 2006). Five alternative responses were provided, namely SA (strongly agree), A (agree), N (neutral), D (disagree), and SD (strongly disagree). A higher score indicates a higher student's adversity quotient. The adversity quotient scale was deemed valid (Chi-square value of 6.278, $p = 0.043$) and reliable (Cronbach's alpha = 0.863), and having a fit model (CFI = 0.998, GFI = 0.989, TLI = 0.994, RMSEA = 0.092).

2.3. Data Analysis

Statistical-descriptive analysis was employed to gain an overview of each research variable. Structural Equation Modeling (SEM) was applied to assess the mediating role of adversity quotient in the relationship between parental support and academic procrastination. This technique is commonly used to see the structural relationship between the measured variable and the latent construct by performing a simultaneous analysis like linear regression and path estimates. This study also measured the relationship between each aspect of parental support and adversity quotient and academic procrastination, and the relationship between each aspect of parental support and academic procrastination. It was done to identify the aspect with the highest contribution to academic procrastination and adversity quotient. The normality was done as a prerequisite of SEM-based on covariance. The goodness of fit index was evaluated using the following indices: probability, DF, CMIN/DF, GFI, NFI, CFI, IFI, TLI, and RMSEA (Kline, 2015). This research used IBM SPSS 23 for the descriptive statistical analysis and normality test, and AMOS Graphics 26 for the Structural Equation Modeling.

3. Results

3.1. Variable descriptive data

This research showed that academic procrastination, parental support, and adversity quotient scores were within the 30–88, 51–103, and 47–85 ranges, respectively. Based on the mean scores and frequency distributions of the variables, most of the participants engaged in a medium level of academic procrastination (69.92%), perceived a medium level of parental support (66.02%) and had an adversity quotient at the medium level (67.97%). The descriptive data of the variables are provided in Table 1, and the frequency distributions of the variables are presented in Table 2. Following the Kolmogorov-Smirnov test score and $p \geq 0.05$, the data in this study were normally distributed. The academic Procrastination showed a Kolmogorov-Smirnov value of 1.170 with $p = 0.129$. Parental Support showed a Kolmogorov-Smirnov score of 1.072 with $p = 0.200$. Adversity quotient showed a Kolmogorov-Smirnov of 0.957 with $p = 0.319$.

Table 1. Descriptive Data of the Variables

271 **Table 2. Frequency Distributions of the Variables**

272 **3.2. Goodness of Fit**

273 The overall model fit is presented in Table 3. Based on Table 3, the Goodness of Fit index showed
 274 good fit according to DF, CMIN/DF, GFI, NFI, IFI, and TLI and close fit according to RMSEA.
 275 Meanwhile, the sig. Probability demonstrated marginal fit, which was still acceptable. Therefore, the
 276 model goodness of fit assumption used in this research was accepted.

277 **Table 3. Model Goodness of Fit Test**

278 **3.3. Hypotheses test**

279 The hypotheses were tested to determine whether parental support had a direct effect on
 280 academic procrastination or whether it had an indirect effect after mediation by adversity quotient. The
 281 analysis results are shown in Table 4. The findings revealed that parental support had a significant
 282 negative role in academic procrastination ($\beta = -0.299$; $p < 0.01$), parental support had a significant
 283 positive role in adversity quotient ($\beta = 0.411$; $p < 0.01$), adversity quotient had a significant negative
 284 role in academic procrastination ($\beta = -0.339$; $p < 0.01$), and adversity quotient had a mediating role in
 285 the relationship between parental support and academic procrastination ($\beta = -0.139$; $p < 0.01$). Parental
 286 support had a greater role in academic procrastination after mediation by adversity quotient ($\beta = -0.438$;
 287 $p < 0.01$).

288 **Table 4. Hypotheses Analysis Results**

289 **Figure 1. Parental Support-Adversity Quotient-Academic Procrastination Model**

290 This research also showed that every variable aspect had a significant correlation ($p < 0.01$), as
 291 seen in Table 5. Parental support had a significant positive role in each adversity quotient aspect and a
 292 significant negative role in each academic procrastination aspect. In contrast, the adversity quotient
 293 negatively affected all academic procrastination aspects. Parental support had the greatest role in the
 294 control aspect of the adversity quotient. Parental support and adversity quotient had the greatest roles
 295 in academic procrastination: "putting off starting and completing a task" and "a gap between the plan
 296 and the actual performance." The regression test results on the variables' aspects can be seen in Table
 297 6.

298 **Table 5. Correlation between Variable Aspects**

299 **Note:**

300 $p < 0.01$.

301 Academic procrastination aspects:

302 PR.1: Putting off starting or completing a task; PR.2: Completing a task late; PR.3: A gap between
 303 the plan and the actual performance; and PR.4: Performing a more pleasurable activity.

304 Parental support aspects:

305 PS.1: Emotional support; PS.2: Companionship Support; PS.3: Information Support; and PS.4:
 306 Instrumental support.

307 Adversity quotient aspects:

308 AQ.1: Self-regulation; AQ.2: Endurance; AQ.3: Reach; and AQ.4: Ownership

309 **Table 6. Results of Regression Test on the Aspects of the Variables**

310 **4. Discussion**

311 This research demonstrated that most Madrasah Aliyah participants engaged in academic
312 procrastination during online learning in the COVID-19 pandemic. Meanwhile, previous research
313 found that academic procrastination among state Madrasah Aliyah students in Bengkulu fell into the
314 high category due to minimum knowledge and skills for using learning media, difficulties participating
315 in online learning because of Internet access issues, and, in the case of delays in assignment submission,
316 poor understanding of the materials and concepts delivered by the teacher during online learning
317 (Buana, Dharmayana and Sholihah, 2022). This gap might be attributable to the demographic aspect
318 related to Internet access. As reported by UNICEF, only 54.49% of households in Bengkulu Province
319 had Internet access, while in Central Java Province, of which Magelang is part, the figure was 66.73%
320 (UNICEF, 2020). The previously reported limitations in access to affordable Internet services and
321 suitable digital devices have caused it difficult for the larger portion of students to participate in the
322 online learning process (UNICEF, 2020).

323 These findings were in line with previous studies conducted on SMA and SMK students in the
324 same province this research was conducted, which reported medium levels of academic procrastination
325 (Latipah, Adi and Insani, 2021; Habibi, Hariastuti and Rusjono, 2022). This portrays that the greater
326 curricular burden borne by MA students than by their SMA and SMK peers in Central Java did not
327 necessarily make the former procrastinate to a greater degree than the latter. A further investigation
328 concerning this matter is thus needed since other factors may also influence it.

329 The next finding was that most of the students perceived their parents' support to be within the
330 moderate category, suggesting that parental support for MA students in implementing online learning
331 was fair food. These findings align with previous research, which reported a moderate level of parental
332 support after an increase from when learning was conducted face-to-face (Wray-Lake et al., 2022). It
333 was also found that most students had a moderate level of adversity quotient and that many were even
334 found to demonstrate a high level of adversity quotient. This depicts that students had a fairly good
335 adversity quotient (Wray-Lake et al., 2022).

336 This research revealed that parental support had a negative role in academic procrastination.
337 This explains that the better the parental support perceived by the students, the lower the academic
338 procrastination. Contrarily, the lower the parental support was in the students' perception, the higher
339 the academic procrastination level. Pre-pandemic research supported this finding, stating that parental
340 support could suppress academic procrastinatory behavior (Erzen and Çikrikci, 2018). This means that
341 both during and before the COVID-19 pandemic, parental support played a role in academic
342 procrastination. This result also confirmed that parents held a key role in students' learning process,
343 particularly during COVID-19 (Wray-Lake et al., 2022).

344 Every aspect of academic procrastination, parental support, and adversity quotient also
345 demonstrated correlation. Parental support contributed negatively to all academic procrastination
346 aspects. Parental support, particularly instrumental support, had the most significant role in the delay
347 in starting or completing a task. Instrumental support refers to providing financial aid, material
348 resources, or necessary services (Murray, Kosty and Hauser-McLean, 2016). The results showed that
349 support in financial aids, devices, and services helped students suppress the rate at which they put off
350 starting and completing a task. This is because, during the online learning process, students need
351 parental support for smooth learning in terms of material (money to buy Internet quotas), device (laptop
352 or personal computer), home condition (a conducive environment for learning) (Maqableh and Alia,
353 2021).

354 In addition, parental support was also found to positively contribute to the adversity quotient.
355 This explains that the better the parental support perceived by students, the higher the adversity
356 quotient, and vice versa. This finding is in parallel with the finding of the qualitative study by (Hidayati
357 and Taufik, 2020), according to which the social support from the family served as an additional factor

358 in the adversity quotient. It was also supported by another study on first-year students, according to
359 which parental support had a role in forming the ability to cope with academic obstacles during
360 COVID-19 (Sihotang and Nugraha, 2021). Parental support promotes students' adaptive and
361 constructive responses to academic challenges field (Sihotang and Nugraha, 2021). Results of a
362 literature review revealed that the support and encouragement from parents in the forms of praises for
363 the child's performance, progress, and efforts, attention to the child's self and their school performance,
364 and provision of a conducive environment and materials for the child's learning predicted the child's
365 academic achievements (Boonk et al., 2018).

366 According to this study, parental support had the most considerable contribution to the control
367 aspect of the adversity quotient. This shows that senior high school students still needed parents' aid
368 in positively controlling their responses to coping with online learning difficulties. Senior high school
369 students are adolescents with a higher degree of independence than in the previous phases and with a
370 need for self-autonomy (Branje et al., 2021). However, this aspect is still in a developmental stage and
371 this requires support from parents who serve as the primary support system for these senior high school
372 students (Kagiticbasi, 2013). As stated previously, this research also discovered that all parental
373 support aspects, namely emotional support, companionship support, information support, and
374 instrumental support, were positively correlated with this control aspect of the adversity quotient, with
375 the last of the four demonstrating the highest degree of correlation. This shows that the fulfilling
376 facilities aided students in controlling their constructive responses to online learning difficulties.
377 Previous research stated that students experienced hardships during online learning due to non-
378 conducive home environments, bad Internet connections, and financial burden for purchasing Internet
379 quotas (Amir et al., 2020; Prasetyanto, Rizki and Sunitiyoso, 2022)

380 The further finding indicated that the adversity quotient negatively contributed to academic
381 procrastination. The higher the adversity quotient of the student, the lower the academic
382 procrastination, and the lower the adversity quotient, the higher the academic procrastination. In other
383 words, the adversity quotient helped students respond to difficulties in online learning positively, hence
384 minimizing academic procrastinatory behavior. This finding supported earlier research on 218 state
385 Madrasah Aliyah students in Pontianak, Indonesia, according to which adversity quotient influenced
386 students' adaptability from offline to online learning, including in terms of the ability to access and use
387 online learning to establish a learning standard (Safi'i et al., 2021). Students with a higher adversity
388 quotient found it easier to deal with any problems (Parvathy and Praseeda, 2014). It was also in line
389 with the results by (Tuasikal, Rumahlewang and Tutupary, 2019), which reported that the adversity
390 quotient had a negative relationship with academic procrastination in students before the COVID-19
391 pandemic. This explains that the adversity quotient suppresses academic procrastinatory behavior in
392 students of senior high school or higher educational levels during or before COVID-19.

393 Adversity quotient was found to have the highest contribution to students' putting off the start
394 and completion of a task. Students with good adversity have a positive perception as they regard
395 difficulties as opportunities (Stoltz, 2006). On the other hand, negative perception in handling tasks
396 will cause students to be inclined toward delaying task completion (Pollack and Herres, 2020).
397 Therefore, the adversity quotient reduces the tendency to put off starting or completing a task. In
398 addition, the reach aspect of the adversity quotient exhibited the strongest correlation with postponing
399 the start or completion of a task. Students with high adversity quotient had reached their problem limits
400 in the event they faced (Stoltz, 2006). They make improvements across various aspects to prevent the
401 problem from affecting other aspects (Juwita and Usodo, 2020). This explains that students who focus
402 on overcoming learning difficulties to minimize academic procrastination tend not to cause any other
403 problems. As discovered in previous works, academic procrastination that is left unresolved may lead
404 to other problems, such as low final grades (Kljajic and Gaudreau, 2018) low learning dedication, low
405 learning performance, and outcomes (Tian et al., 2021) and decreased life satisfaction and increased
406 psychological stress (Peixoto et al., 2021).

This research also demonstrated that the adversity quotient mediates the relationship between parental support and academic procrastination. This means that students' ability to cope with difficulties could be enhanced by parental support when they have a high adversity quotient, hence showing a low tendency for academic procrastination. Based on these findings, in conjunction with the existing literature, it is fair to say that parental support drives the decline in academic procrastination (Erzen and Çikrakci, 2018) and, at the same time, contribute to the rise in the adversity quotient (Hidayati and Taufik, 2020; Sihotang and Nugraha, 2021). Furthermore, the adversity quotient has a role in students' tendency to engage in academic procrastination (Parvathy and Praseeda, 2014; Safi'i et al., 2021).

The results presented above have several important implications. They contribute to the literature on COVID-19 impacts on students' academic aspects and supporting factors. It was revealed that parental support affected academic procrastination and adversity quotient. Therefore, it is deemed necessary to pay special attention to the COVID-19 impact on parents, allowing them to provide support for their children optimally. In addition, there were also results showing that the adversity quotient contributed to the relationship between parental support and academic procrastination. These findings have a key contribution to the academic procrastination literature, given that studies that use adversity quotient as a mediator have thus far been minimal.

This research came with several limitations. Uneven distribution of education facilities throughout Indonesia might have influenced the research results. This study was convened only to subjects in Magelang, and Madrasah Aliyah students in that. Future studies may be conducted at international schools and with the involvement of subjects in a wider area in Indonesia. Other internal and external factors may be examined in greater depth in future works since this study was restricted only to parental support and adversity quotient. Moreover, descriptive data of parents' situations (e.g., occupation, educational status, and income) had yet to be revealed in this research. Hopefully, future research may explain these data.

5. Conclusion

This study found that parental support negatively contributed to academic procrastination and adversity. Meanwhile, the adversity quotient negatively contributed to academic procrastination and mediated the relationship between parental support and academic procrastination. This research also discovered that each aspect of the variables demonstrated a significant correlation. Finally, both parental support and adversity quotient could negatively predict every aspect of academic procrastination.

6. Conflict of Interest

The authors declare that the research was conducted without any commercial or financial relationships construed as a potential conflict of interest.

7. Data Availability Statement

The data supporting this work's results are available from the corresponding author, SR (alif.muarifah@pgpaud.uad.ac.id), upon reasonable request.

8. Author Contributions

Conceptualization: A.M. Data curation: A.M., N.H.R., and F.O. Formal analysis: M., Z.B.S.M., N.H.R., and F.O. Investigation: A.M., M., and Z.B.S.M. Methodology: A.M., M., Z.B.S.M. and N.H.R.; Validation: A.M., M., and Z.B.S.M. Visualization: N.H.R. and F.O. Writing—initial draft

449 preparation, A.M. Writing—review and editing: A.M., M., Z.B.S.M., N.H.R., and F.O. All authors
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- 599

Supplementary Material

1 Supplementary Tables

Table 1. Descriptive Data of the Variables

Variable	N	Minimum	Maximum	Mean	SD
Academic procrastination	256	30	88	55.96	8.973
Parental support	256	51	103	80.24	9.607
Advercity quotient	256	47	85	66.09	6.486

Table 2. Frequency Distributions of the Variables

Category	Procrastination		Parental support		Advercity quotient	
	Frequency	%	Frequency	%	Frequency	%
Low	43	16.80%	45	17.58%	41	16.02%
Moderate	179	69.92%	169	66.02%	174	67.97%
Hight	34	13.28%	42	16.41%	41	16.02%

Table 3. Model Goodness of Fit Test

No	Goodness of Fit Index	Cut-Off Value	Result	Conclusion
1	Sig. Probability	≥ 0.05	0.011	Marginal Fit
2	Df	> 0	51	Good Fit
3	CMIN/DF	≤ 2.00	1.508	Good Fit
4	GFI	≥ 0.90	0.954	Good Fit
5	NFI	≥ 0.90	0.987	Good Fit
6	CFI	≥ 0.90	0.996	Good Fit
7	IFI	≥ 0.90	0.996	Good Fit
8	TLI	≥ 0.90	0.994	Good Fit
9	RMSEA	≤ 0.08	0.045	Close Fit

Table 4. Hypotheses Analysis Results

Path	Coefficient (β)	P value
<i>Direct effect</i>		
Parental support \rightarrow Academic procrastination	-.299	0.000***
Parental support \rightarrow Adversity quotient	.411	0.000***
Adversity quotient \rightarrow Academic procrastination	-.339	0.000***
<i>Indirect effect</i>		
Parental support \rightarrow Adversity quotient \rightarrow Academic procrastination	-.139	0.000***
<i>Total effect</i>		
Parental support \rightarrow Academic procrastination	-.438	0.000***

Table 5. Correlation between Variable Aspects

	PR.1	PR.2	PR.3	PR.4	PS.1	PS.2	PS.3	PS.4	AQ.1	AQ.2	AQ.3	AQ.4
PR.1	1											
PR.2	0.785	1										
PR.3	0.806	0.717	1									
PR.4	0.709	0.556	0.698	1								
PS.1	-0.403	-0.414	-0.402	-0.421	1							
PS.2	-0.374	-0.368	-0.376	-0.384	0.989	1						
PS.3	-0.357	-0.351	-0.352	-0.367	0.978	0.979	1					
PS.4	-0.330	-0.332	-0.331	-0.339	0.982	0.987	0.980	1				
AQ.1	-0.425	-0.361	-0.399	-0.388	0.406	0.406	0.407	0.415	1			
AQ.2	-0.413	-0.346	-0.396	-0.382	0.391	0.389	0.390	0.399	0.97	1		
AQ.3	-0.429	-0.366	-0.408	-0.372	0.396	0.395	0.399	0.401	0.956	0.935	1	
AQ.4	-0.410	-0.348	-0.402	-0.373	0.396	0.393	0.394	0.405	0.972	0.962	0.948	1

2 Supplementary Figures

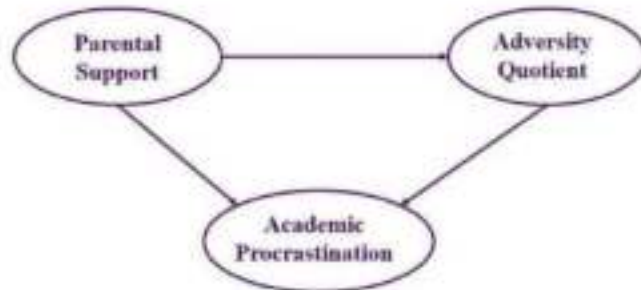


Figure 1. Research hypotheses model

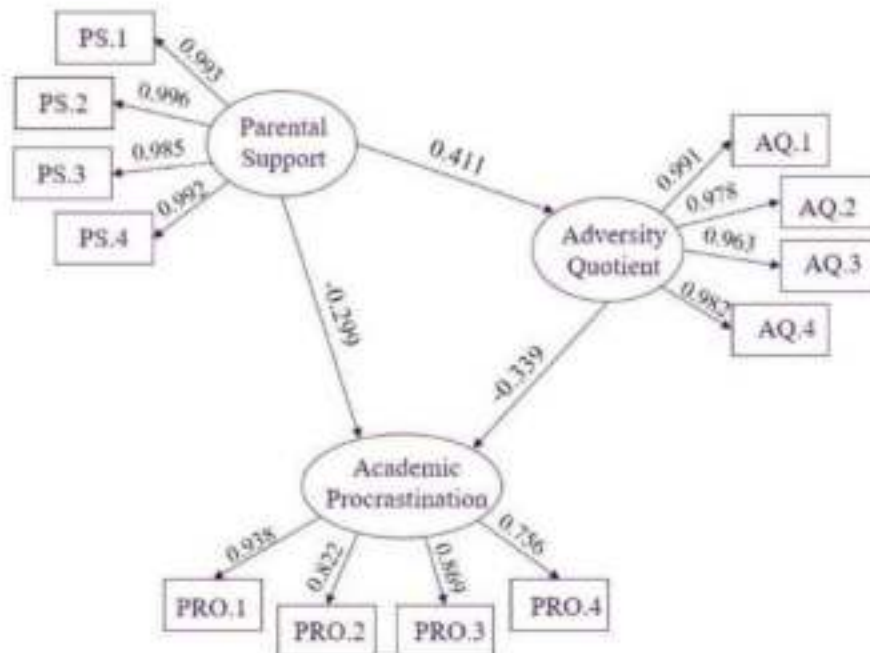


Figure 2. Parental Support-Adversity Quotient-Academic Procrastination Model

Lampiran 3.
Naskah Setelah Revisi 2

1 Students' academic procrastination during the COVID-19 pandemic: 2 How does adversity quotient mediate parental social support?

3
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15 **Keywords:** Academic procrastination₁, adversity quotient₂, COVID-19₃, parental social
16 support₄, school educations

17 Abstract

18 COVID-19 has had a widespread impact on all aspects of life. The government has undertaken
19 numerous restrictive attempts to sever the virus transmission chain. In the education sector, one of the
20 attempts is to apply certain learning models. For instance, the online model has been used in place of
21 the face-to-face one across all academic and non-academic services. Educators have faced several
22 obstacles, including academic procrastination. Academic procrastination refers to intentionally putting
23 off working on an assignment, which negatively influences academic achievement. This study aimed
24 to examine the role of parental social support in academic procrastination with the mediation of the
25 adversity quotient. The subjects consisted of 256 state Madrasah Aliyah students in Magelang aged
26 15–18 years ($M = 16.53$, $SD = 1.009$). Data collection employed the academic procrastination scale,
27 parental social support scale, and adversity quotient scale. Data analysis used descriptive statistics and
28 structural equation modeling (SEM) with the aid of IBM SPSS 23 and AMOS Graphics 26. The
29 research results showed that all variables fell into the medium category. Parental social support had a
30 negative role on academic procrastination and a positive one on adversity quotient. Meanwhile, the
31 adversity quotient had a negative role in academic procrastination and a significant role as a mediator
32 in the relationship between parental social support and academic procrastination. Therefore, parental
33 social support is required to increase students' adversity quotient in suppressing academic
34 procrastination. Special attention from parents to students is thus critical during the COVID-19
35 pandemic, with the mediation of adversity quotient.

36 1. Introduction

37 During the COVID-19 pandemic, learning and teaching activities are experiencing systemic
38 alterations from offline to online-based. Nearly all over the world, students face the challenges of
39 independent learning, learning on the computer, and a lack of contact with teachers and peers, thereby
40 demanding sound time management (Pelikan et al., 2021). This learning model is unprecedented in
41 educational systems around the globe, and this is particularly true in Indonesia, where understanding

of IT has yet to be equal on all lines. The online learning model requires thorough, systematic preparation, but the state of emergency in which it is implemented has spawned a multitude of issues, both academic and non-academic. A frequent issue among them is academic procrastination, which refers to students' purposeful deferment in various academic activities, which is extensively impactful on their future (Wiguna et al., 2020; Pelikan et al., 2021; Tian et al., 2021; Laia et al., 2022). There has been a significant rise in academic procrastination among students (Tezer et al., 2020; Pelikan et al., 2021; Buana, Dharmayana and Sholihah, 2022). The phenomenon of academic procrastination during the online learning policy is confirmed by previous studies that suggest the online learning is linked to the postponement of completing tasks related to the learning (Steel and Klingsieck, 2016). Students procrastinate, although it may lead to negative consequences (Goroshit, 2018). It results in students' low final grades (Kljajic and Gaudreau, 2018). Students put off completing academic work for several reasons, do not submit tasks late, and face difficulties in time management in the learning (Laia et al., 2022). If the indiscipline habit is left uncorrected, it will result in a bad mentality for students' psychological development (Zacks and Hen, 2018; Amir et al., 2020; Maqableh and Alia, 2021; Peixoto et al., 2021; Pelikan et al., 2021; Prasetyanto, Rizki and Sunitiyoso, 2022).

Despite realizing that it has negative effects, students still engage in academic procrastination for internal or external reasons. Still, due to the pandemic situation, some teachers consider it normal and understandable. Some factors associated with academic procrastination are weak learning dedication, low learning performance, and poor learning objectives achievement (Tian et al., 2021). Academic procrastination is spurred by certain situations, including task difficulty and low task attractiveness, being compelled to learn autonomously, and unattractive teacher characteristics (Klingsieck, 2013). Students experience difficulties in learning and managing the learning process and lack independence and maturity, thereby finding it difficult to motivate themselves, especially when faced with difficult, lengthy learning tasks (low adversity quotient) (Zacks and Hen, 2018). Other reasons include the unattractive way of delivering materials, difficulty adapting to online learning, connection instability, and extra financial burden to access the Internet (Amir et al., 2020; Maqableh and Alia, 2021; Peixoto et al., 2021; Pelikan et al., 2021; Prasetyanto, Rizki and Sunitiyoso, 2022)). In addition, there are issues of ineffectively delivered curriculum and a lack of interaction between teacher and student or between student and student (Mohalik and Sahoo, 2020). Students also have difficulty concentrating when learning, psychological problems, and poor time management (Maqableh and Alia, 2021). They are often confused about completing their tasks because the instructions are hard to understand (Peixoto et al., 2021). Besides, procrastination can also result from laziness in completing the tasks from the teacher and low learning motivation (Pelikan et al., 2021). The following issues are also present: the homework given by the teacher overweight's the assignment given during face-to-face meetings; the intensity of looking at a laptop or handphone screen causes disturbance to health; the conditions at home make it difficult to stay focused; being burdened by other works; vagueness in the teacher's explanation; and difficulty discussing with or asking questions to the teacher (Prasetyanto, Rizki and Sunitiyoso, 2022). Finally, the unattractiveness of the online learning model serves as an important factor in the high degree of procrastination during COVID-19 (Latipah, Adi and Insani, 2021; Prasetyanto, Rizki and Sunitiyoso, 2022).

Following the description above, it is necessary to further scrutiny the students' academic procrastination during the COVID-19 pandemic. However, research among senior high school students in Indonesia is still limited to the non-Islamic-based school (Latipah, Adi and Insani, 2021; Habibi, Hariastuti and Rusijono, 2022; Irawan and Widayastuti, 2022). Studies showed that 47.2% of senior high school (SMA) students in Temanggung engaged in a medium level of academic procrastination (Latipah, Adi and Insani, 2021), 34.3% of vocational high school (SMK) students in Bojonegoro demonstrated a medium level of academic procrastination (Irawan and Widayastuti, 2022), and 65.2 or 78.6% state senior high school (SMAN) students in Mojokerto engaged in a medium level of academic procrastination (Habibi, Hariastuti and Rusijono, 2022). Meanwhile, in Indonesia, Islamic-based senior

91 high schools named Madrasah Aliyah also exist, numbering 9,131 or accounting for 24.6% of all
92 schools at that level (Statistik, 2021; Kementerian Agama, 2022). Madrasah Aliyah (MA) is a public
93 high school with an Islamic character administered by the Department of Religious Affairs (Bastari et
94 al., 2018). The curriculum load borne by MA students is higher than that of SMA and SMK students.
95 The public senior high school (SMA) curriculum emphasizes the student's theoretical mastery by
96 providing in-depth general subjects (Putri, 2020). Meanwhile, the vocational high school (SMK)
97 focuses more on students' vocational skills to ensure students' readiness to work in certain work fields
98 (e.g., engineering, cuisine, hospitality, and craft industries, among others) (Putri, 2020). In Islamic high
99 school (MA), students should learn Islamic knowledge, characters, and general knowledge like in SMA
100 (Alawiyah, 2014). This difference poses MA students with issues of greater complexity in online
101 learning during COVID-19 than those faced by non-Islamic-based school students (Latipah, Adi and
102 Insani, 2021). Previous studies revealed that in online learning during COVID-19, 40.4% of students
103 of state Madrasah Aliyyahs in Bengkulu demonstrated a high level of academic procrastination, and
104 28.6% even did a very high level of procrastination (Buana, Dharmayana and Sholihah, 2022). These
105 findings contrast with the SMA and SMK cases, where the students' procrastination was within the
106 medium category. Research on procrastination in the Madrasah Aliyah environment during COVID-
107 19 is still minimal. Previous studies has examined the roles of self-efficacy and emotional intelligence
108 on procrastination, but it was only focused on personal factors (Buana, Dharmayana and Sholihah,
109 2022).

110 To enrich the literature on academic procrastination during online learning implementation, this
111 research focused on Madrasah Aliyah. It included external (parental social support) and internal
112 (personal) factors in reducing academic procrastination. Over the course of COVID-19, online learning
113 took place at home. Therefore, parents' involvement during the learning implementation is critical.
114 Moreover, parents are the most prominent and pivotal figures in the provision of resources for children,
115 hence holding a central place in creating social and emotional contexts (Wray-Lake et al., 2022).

116 1.1. Parental Social Support and Academic Procrastination in Online Learning

117 During COVID-19 in 2021, Indonesia still implemented online learning across all levels,
118 including senior high school. Throughout online learning, students require parental social support for
119 smooth learning, both financially and psychologically, since parents have the primary responsibility
120 for their children's education, including establishing social and emotional communication. However
121 many parents in Indonesia were found to be faced with psychological, social, and financial problems
122 during COVID-19 (Kaligis, Indraswari and Ismail, 2020; Alam et al., 2021; Anindyajati et al., 2021).
123 Anxiety and stress problems in the family were also emerging (Anindyajati et al., 2021). Various
124 boaxes have triggered panic and fear (Kaligis, Indraswar) and Ismail, 2020). Problems also
125 encompassed family's financial problems caused by the social distancing policy, including decreased
126 income, increased unemployment rate, and difficulty finding a new job, all of which had undermined
127 parental social support for children (Alam et al., 2021). Study results revealed that parents with
128 children attending school during the early stage of COVID-19 in Indonesia were suffering from a
129 moderate stress level due to having to allocate time for working from home and assisting their children
130 in studying from home at the same time. Parents were also overwhelmed by their children's
131 assignments, especially mothers whose time was already mostly spent doing household chores and
132 working from home (SusiLOWATI and Azzasyofia, 2020). Thorell et al. (2021) discovered that online
133 learning harmed parents' lives by increased stress levels due to high workloads, fear that their
134 children's academic performance would drop, social isolation, and domestic conflict.

135 Although many parents encounter a multitude of difficulties that lead to psychological, social,
136 and financial issues, parental social support occupies a core place within a crowded situation, raising
137 students' spirit albeit being under restrictions (Ikeda and Echazarra, 2021; Klootwijk et al., 2021).

138 Maqableh and Alia, 2021). Research results reported a significant increase in parental social support
 139 during online learning from face-to-face learning, where parents felt a sense of responsibility for the
 140 online learning process (Wray-Lake et al., 2022). Parental social support appropriate to students' needs
 141 during online learning may take the following forms: an internet facility, a material device such as a
 142 laptop or personal computer, and a home with a conducive environment for the learning (Maqableh
 143 and Alia, 2021).

144 Being related to various learning problems during online learning implementation, parental
 145 social support helps overcome academic procrastination optimally. A US-based education longitudinal
 146 study on 15,240 ten graders showed that parents' involvement in their children's education, both at
 147 home and in school, had a significant effect on the children's learning success (Benner, Boyle and
 148 Sadler, 2016). Results of another study on 313 upper secondary school students in Turkey showed that
 149 social support from the family contributed to academic procrastination (Erzen and Çikrikci, 2018).
 150 Parental social support is pivotal and considerably influential to students' social, psychological, and
 151 academic functions (Won and Yu, 2018). It was also reported that 177 US parents of kindergarten to
 152 senior high school-aged children found it difficult to motivate their children to learn online (Garbe et
 153 al., 2020). Meanwhile, parental emotional support, such as motivational support, is grievously needed
 154 by students (Ikeda and Echazarra, 2021; Klootwijk et al., 2021). A lack of attention and learning
 155 motivation from parents for children are among the most responsible for the high level of academic
 156 procrastination behavior in the online learning (Wulandari, Fatimah and Suherman, 2021).

157 1.2. The Effects of Parental Social Support and Adversity Quotient on Academic 158 Procrastination

159 Parental social support affects students' adversity quotient and, subsequently academic
 160 procrastination. Parents, who are responsible for their children's education and future, feel called to
 161 think about how their children will reach success in learning, so they try to provide their children with
 162 social and emotional support well and openly. This support raises the children's motivation and spirit
 163 to put an effort to reach success, giving them the strength to take on challenges and hold on in the face
 164 of obstacles (Hidayati and Taufik, 2020). Adversity quotient is how well an individual persists in
 165 hardships and turns difficulties into opportunities (Stoltz, 2006). A qualitative study on students from
 166 low-income (poor) families and students falling victim to domestic violence or broken homes showed
 167 that parents had a strong association with adversity quotient development because the family is a
 168 motivator for students' improved endurance (Hidayati and Taufik, 2020). Therefore, parents play an
 169 essential role in improving students' adversity quotient. This is supported by the results of a study on
 170 232 first-year students in Makassar, which revealed that parental social support had a role in forming
 171 the ability to cope with academic obstacles during the COVID-19 period (Sihotang and Nugraha,
 172 2021). Parental social support may give the children opportunities to make decisions, provide a clear,
 173 consistent guide to their expectations and rules, and give the students adaptive and constructive
 174 responses to face academic obstacles (Sihotang and Nugraha, 2021).

175 Adversity quotient is essential for students during COVID-19. Given that during online
 176 learning, senior high school students in Indonesia face obstacles and barriers that may influence their
 177 learning quality and outcomes (Amir et al., 2020; Prasetyanto, Rizki and Sunitiyoso, 2022). With an
 178 adversity quotient, students can take situations under control, take advantage of opportunities, and
 179 have higher success chances (Juwita and Usodo, 2020). Research also unveiled that academic
 180 procrastination was influenced by the adversity quotient (Tuasikal, Rumahlewang and Tutupary,
 181 2019). It stated that the higher the student's adversity quotient, the lower the procrastination tendency,
 182 and the lower the student's adversity quotient, the higher the procrastination tendency (Tuasikal,
 183 Rumahlewang and Tutupary, 2019).

184 Students need an adversity quotient to successfully deal with problems and fulfill their tasks
 185 and responsibilities in the online learning field (Safi'i et al., 2021) and tackle academic issues
 186 (Parvathy and Praseeda, 2014). Students with high adversity quotients have a better self-motivation
 187 ability. In contrast, those with low adversity quotients will tend to give up and yield easily display
 188 pessimism, and exhibit a negative attitude (Stoltz, 2006). Earlier research findings showed that the
 189 adversity quotient affected students' ability to adapt to online learning from offline learning, not
 190 excluding the ability to access and use online learning to establish a learning standard (Safi'i et al.,
 191 2021).

192 1.3. Present Study

193 According to the explanation above, especially in the case of Madrasah Aliyah students, online
 194 learning has caused high levels of academic procrastination behavior. Earlier studies have explained
 195 that parental social support had a role in adversity quotient and academic procrastination, while
 196 adversity quotient had a role in academic procrastination. It can be concluded that parental social
 197 support contributes to students' adversity quotient and subsequently affects academic procrastination.
 198 Thus far, there is minimal research on the mediating role of adversity quotient in the relationship
 199 between parental social support and academic procrastination. Therefore, the goal pursued by this
 200 research was to explain how parental social support influences academic procrastination with the
 201 mediation of adversity quotient in the case of Madrasah Aliyah students. The hypotheses model of this
 202 research is presented in Figure 1, while the hypotheses themselves are as follows:

203 H₁: Parental social support has a negative role in academic procrastination.

204 H₂: Parental social support has a positive role in the adversity quotient.

205 H₃: Adversity quotient has a negative role in academic procrastination.

206 H₄: Adversity quotient has a mediating role in the relationship between parental social support and
 207 academic procrastination.


208 **Figure 1. Research hypotheses model**

209 2. Methods

210 2.1. Research Participants and Procedure

211 As many as 256 students from two Public Madrasah Aliyahs in Magelang aged 15–18 years (M
 212 = 16.53, SD = 1.009), consisting of 131 male and 125 female students, participated in this research.
 213 The participants were recruited by proportionate random sampling. This research acquired a research
 214 permit from Ahmad Dahlan University (F4/387/PS44/D.66/IV/2021) and from schools where this
 215 research was conducted. The researchers coordinated with school counselors to access participants'
 216 phone numbers and form a WhatsApp group. Data collection was carried out using the Google Forms
 217 application. The researchers provided information on the research and instructions on completing the
 218 questionnaire via the WhatsApp group. Participants' informed consent was asked ahead of the Google
 219 Forms questionnaire completion. Each participant spent around fifteen minutes collecting the data.
 220 This research was conducted in July 2021.

221 2.2. Instruments

222 The academic procrastination scale was formulated using a 24-item Likert scale about the
 223 procrastination signs according to Ferrari Jonson and McCown: students put off starting and finishing
 224 a task, students complete a task late, there is a gap between the plan and the actual performance, and
 225 students prefer doing a more pleasurable activity (Ferrari, Johnson and McCown, 1995). Four answer
 226 alternatives were used: SA (strongly agree), A (agree), D (disagree), and SD (strongly disagree). 

higher score indicates a higher level of students' procrastination. The academic procrastination scale was deemed valid (Chi-square value of 14.58, $p = 0.01$) and reliable (Cronbach's alpha = 0.803), and having a fit model (CFI = 0.983; GFI = 0.73; TLI = 0.948; RMSEA = 0.098).

The parental social support scale was composed of 28 items. It took on the form of a Likert scale that was formulated about the social support aspects according to Sarafino and Smith; emotional support (a. empathy, b. comforting support); companionship support (a. spending time together, b. having a mutually supportive companionship bond); information support (a. receiving suggestions and advice, b. acquiring information); and instrumental support (a. non-material direct aid, b. action direct aid) (Sarafino and Smith, 2014). Four answer alternatives were used, namely SA (strongly agree), A (agree), D (disagree), and SD (strongly disagree). A higher score indicates higher students' perceived parental social support. The parental social support scale was deemed valid (Chi-square value of 15.978; $p = 0.00$) and reliable (Cronbach's alpha = 0.863), and having a fit model (CFI = 0.995; GFI = 0.71; TLI = 0.985; RMSEA = 0.099).

Lastly, the adversity quotient scale was a Likert scale with 22 items. This scale referred to Stoltz's dimensions, namely control, ownership, reach, and endurance (Stoltz, 2006). Five alternative responses were provided, namely SA (strongly agree), A (agree), N (neutral), D (disagree), and SD (strongly disagree). A higher score indicates a higher student's adversity quotient. The adversity quotient scale was deemed valid (Chi-square value of 6.278; $p = 0.043$) and reliable (Cronbach's alpha = 0.863), and having a fit model (CFI = 0.998; GFI = 0.989; TLI = 0.994; RMSEA = 0.092).

2.3. Data Analysis

Statistical-descriptive analysis was employed to gain an overview of each research variable. Structural Equation Modeling (SEM) was applied to assess the mediating role of adversity quotient in the relationship between parental social support and academic procrastination. This technique is commonly used to see the structural relationship between the measured variable and the latent construct by performing a simultaneous analysis like linear regression and path estimates. This study also measured the relationship between each aspect of parental social support and adversity quotient and academic procrastination, and the relationship between each aspect of parental social support and academic procrastination. It was done to identify the aspect with the highest contribution to academic procrastination and adversity quotient. The normality was done as a prerequisite of SEM-based on covariance. The goodness of fit index was evaluated using the following indices: probability, DF, CMIN/DF, GFI, NFI, CFI, IFI, TLI, and RMSEA (Kline, 2015). This research used IBM SPSS 23 for the descriptive statistical analysis and normality test, and AMOS Graphics 26 for the Structural Equation Modeling.

3. Results

3.1. Variable descriptive data

This research showed that academic procrastination, parental social support, and adversity quotient scores were within the 30–88, 51–103, and 47–85 ranges, respectively. Based on the mean scores and frequency distributions of the variables, most of the participants engaged in a medium level of academic procrastination (69.92%), perceived a medium level of parental social support (66.02%) and had an adversity quotient at the medium level (67.97%). The descriptive data of the variables are provided in Table 1, and the frequency distributions of the variables are presented in Table 2. Following the Kolmogorov-Smirnov test score and $p > 0.05$, the data in this study were normally distributed. The academic Procrastination showed a Kolmogorov - Smirnov value of 1.170 with $p = 0.129$. Parental social support showed a Kolmogorov - Smirnov score of 1.072 with $p = 0.200$. Adversity quotient showed a Kolmogorov - Smirnov of 0.957 with $p = 0.319$.

272 **Table 1. Descriptive Data of the Variables**

273 **Table 2. Frequency Distributions of the Variables**

274 **3.2. Goodness of Fit**

275 The overall model fit is presented in Table 3. Based on Table 3, the Goodness of Fit index showed
 276 good fit according to DF, CMIN/DF, GFI, NFI, IFI, and TLI and close fit according to RMSEA.
 277 Meanwhile, the sig. Probability demonstrated marginal fit, which was still acceptable. Therefore, the
 278 model goodness of fit assumption used in this research was accepted.

279 **Table 3. Model Goodness of Fit Test**

280 **3.3. Hypotheses test**

281 The hypotheses were tested to determine whether parental social support had a direct effect on
 282 academic procrastination or whether it had an indirect effect after mediation by adversity quotient. The
 283 analysis results are shown in Table 4. The findings revealed that parental social support had a
 284 significant negative role in academic procrastination ($\beta = -0.299$; $p < 0.01$), parental social support had
 285 a significant positive role in adversity quotient ($\beta = 0.411$; $p < 0.01$), adversity quotient had a significant
 286 negative role in academic procrastination ($\beta = -0.339$; $p < 0.01$), and adversity quotient had a mediating
 287 role in the relationship between parental social support and academic procrastination ($\beta = -0.139$; $p <$
 288 0.01). Parental social support had a greater role in academic procrastination after mediation by
 289 adversity quotient ($\beta = -0.438$; $p < 0.01$).

290 **Table 4. Hypotheses Analysis Results**

291 **Figure 1. Parental social support-Adversity Quotient-Academic Procrastination Model**

292 This research also showed that every variable aspect had a significant correlation ($p < 0.01$), as
 293 seen in Table 5. Parental social support had a significant positive role in each adversity quotient aspect
 294 and a significant negative role in each academic procrastination aspect. In contrast, the adversity
 295 quotient negatively affected all academic procrastination aspects. Parental social support had the
 296 greatest role in the control aspect of the adversity quotient. Parental social support and adversity
 297 quotient had the greatest roles in academic procrastination: "putting off starting and completing a task"
 298 and "a gap between the plan and the actual performance." The regression test results on the variables'
 299 aspects can be seen in Table 6.

300 **Table 5. Correlation between Variable Aspects**

301 **Note:**

302 $p < 0.01$.

303 Academic procrastination aspects:

304 PR.1: Putting off starting or completing a task; PR.2: Completing a task late; PR.3: A gap between
 305 the plan and the actual performance; and PR.4: Performing a more pleasurable activity.

306 Parental social support aspects:

307 PS.1: Emotional support; PS.2: Companionship Support; PS.3: Information Support; and PS.4:
 308 Instrumental support.

309 Adversity quotient aspects:

310 AQ.1: Self-regulation; AQ.2: Endurance; AQ.3: Reach; and AQ.4: Ownership

Table 6. Results of Regression Test on the Aspects of the Variables

4. Discussion

This research demonstrated that most Madrasah Aliyah participants engaged in academic procrastination during online learning in the COVID-19 pandemic. Meanwhile, previous research found that academic procrastination among state Madrasah Aliyah students in Bengkulu fell into the high category due to minimum knowledge and skills for using learning media, difficulties participating in online learning because of Internet access issues, and, in the case of delays in assignment submission, poor understanding of the materials and concepts delivered by the teacher during online learning (Buana, Dharmayana and Sholihah, 2022). This gap might be attributable to the demographic aspect related to Internet access. As reported by UNICEF, only 54.49% of households in Bengkulu Province had Internet access, while in Central Java Province, of which Magelang is part, the figure was 66.73% (UNICEF, 2020). The previously reported limitations in access to affordable Internet services and suitable digital devices have caused it difficult for the larger portion of students to participate in the online learning process (UNICEF, 2020).

These findings were in line with previous studies conducted on SMA and SMK students in the same province this research was conducted, which reported medium levels of academic procrastination (Latipah, Adi and Insani, 2021; Habibi, Hariastuti and Rusijono, 2022). This portrays that the greater curricular burden borne by MA students than by their SMA and SMK peers in Central Java did not necessarily make the former procrastinate to a greater degree than the latter. A further investigation concerning this matter is thus needed since other factors may also influence it.

The next finding was that most of the students perceived their parents' support to be within the moderate category, suggesting that parental social support for MA students in implementing online learning was fair food. These findings align with previous research, which reported a moderate level of parental social support after an increase from when learning was conducted face-to-face (Wray-Lake et al., 2022). It was also found that most students had a moderate level of adversity quotient and that many were even found to demonstrate a high level of adversity quotient. This depicts that students had a fairly good adversity quotient (Wray-Lake et al., 2022).

This research revealed that parental social support had a negative role in academic procrastination. This explains that the better the parental social support perceived by the students, the lower the academic procrastination. Contrarily, the lower the parental social support was in the students' perception, the higher the academic procrastination level. Pre-pandemic research supported this finding, stating that parental social support could suppress academic procrastination behavior (Erzen and Çikrikci, 2018). This means that both during and before the COVID-19 pandemic, parental social support played a role in academic procrastination. This result also confirmed that parents held a key role in students' learning process, particularly during COVID-19 (Wray-Lake et al., 2022).

Every aspect of academic procrastination, parental social support, and adversity quotient also demonstrated correlation. Parental social support contributed negatively to all academic procrastination aspects. Parental social support, particularly instrumental support, had the most significant role in the delay in starting or completing a task. Instrumental support refers to providing financial aid, material resources, or necessary services (Murray, Kosty and Hauser-McLean, 2016). The results showed that support in financial aids, devices, and services helped students suppress the rate at which they put off starting and completing a task. This is because, during the online learning process, students need parental social support for smooth learning in terms of material (money to buy Internet quotas), device (laptop or personal computer), home condition (a conducive environment for learning) (Maqableh and Alia, 2021).

In addition, parental social support was also found to positively contribute to the adversity quotient. This explains that the better the parental social support perceived by students, the higher the

358 adversity quotient, and vice versa. This finding is in parallel with the finding of the qualitative study
359 by (Hidayati and Taufik, 2020), according to which the social support from the family served as an
360 additional factor in the adversity quotient. It was also supported by another study on first-year students,
361 according to which parental social support had a role in forming the ability to cope with academic
362 obstacles during COVID-19 (Sihotang and Nugraha, 2021). Parental social support promotes students'
363 adaptive and constructive responses to academic challenges field (Sihotang and Nugraha, 2021).
364 Results of a literature review revealed that the support and encouragement from parents in the forms
365 of praises for the child's performance, progress, and efforts, attention to the child's self and their school
366 performance, and provision of a conducive environment and materials for the child's learning predicted
367 the child's academic achievements (Boonk et al., 2018).

368 According to this study, parental social support had the most considerable contribution to the
369 control aspect of the adversity quotient. This shows that senior high school students still needed
370 parents' aid in positively controlling their responses to coping with online learning difficulties. Senior
371 high school students are adolescents with a higher degree of independence than in the previous phases
372 and with a need for self-autonomy (Branje et al., 2021). However, this aspect is still in a developmental
373 stage and thus requires support from parents who serve as the primary support system for these senior
374 high school students (Kagiticibasi, 2013). As stated previously, this research also discovered that all
375 parental social support aspects, namely emotional support, companionship support, information
376 support, and instrumental support, were positively correlated with this control aspect of the adversity
377 quotient, with the last of the four demonstrating the highest degree of correlation. This shows that the
378 fulfilling facilities aided students in controlling their constructive responses to online learning
379 difficulties. Previous research stated that students experienced hardships during online learning due to
380 non-conducive home environments, bad Internet connections, and financial burden for purchasing
381 Internet quotas (Amir et al., 2020; Prasetyanto, Rizki and Sunitiyoso, 2022)

382 The further finding indicated that the adversity quotient negatively contributed to academic
383 procrastination. The higher the adversity quotient of the student, the lower the academic
384 procrastination, and the lower the adversity quotient, the higher the academic procrastination. In other
385 words, the adversity quotient helped students respond to difficulties in online learning positively, hence
386 minimizing academic procrastination behavior. This finding supported earlier research on 218 state
387 Madrasah Aliyah students in Pontianak, Indonesia, according to which adversity quotient influenced
388 students' adaptability from offline to online learning, including in terms of the ability to access and use
389 online learning to establish a learning standard (Safi'i et al., 2021). Students with a higher adversity
390 quotient found it easier to deal with any problems (Parvathy and Praseeda, 2014). It was also in line
391 with the results by (Tuasikal, Rumahlewang and Tutupary, 2019), which reported that the adversity
392 quotient had a negative relationship with academic procrastination in students before the COVID-19
393 pandemic. This explains that the adversity quotient suppresses academic procrastination behavior in
394 students of senior high school or higher educational levels during or before COVID-19.

395 Adversity quotient was found to have the highest contribution to students' putting off the start
396 and completion of a task. Students with good adversity have a positive perception as they regard
397 difficulties as opportunities (Stoltz, 2006). On the other hand, negative perception in handling tasks
398 will cause students to be inclined toward delaying task completion (Pollack and Herres, 2020).
399 Therefore, the adversity quotient reduces the tendency to put off starting or completing a task. In
400 addition, the reach aspect of the adversity quotient exhibited the strongest correlation with postponing
401 the start or completion of a task. Students with high adversity quotient had reached their problem limits
402 in the event they faced (Stoltz, 2006). They make improvements across various aspects to prevent the
403 problem from affecting other aspects (Juwita and Usodo, 2020). This explains that students who focus
404 on overcoming learning difficulties to minimize academic procrastination tend not to cause any other
405 problems. As discovered in previous works, academic procrastination that is left unresolved may lead
406 to other problems, such as low final grades (Kljajic and Gaudreau, 2018) low learning dedication, low

407 learning performance, and outcomes (Tian et al., 2021) and decreased life satisfaction and increased
408 psychological stress (Peixoto et al., 2021).

409 This research also demonstrated that the adversity quotient mediates the relationship between
410 parental social support and academic procrastination. This means that students' ability to cope with
411 difficulties could be enhanced by parental social support when they have a high adversity quotient,
412 hence showing a low tendency for academic procrastination. Based on these findings, in conjunction
413 with the existing literature, it is fair to say that parental social support drives the decline in academic
414 procrastination (Erzen and Çikrikci, 2018) and, at the same time, contribute to the rise in the adversity
415 quotient (Hidayati and Taufik, 2020; Sihotang and Nugraha, 2021). Furthermore, the adversity quotient
416 has a role in students' tendency to engage in academic procrastination (Parvathy and Praseeda, 2014;
417 Safi'i et al., 2021).

418 The results presented above have several important implications. They contribute to the
419 literature on COVID-19 impacts on students' academic aspects and supporting factors. It was revealed
420 that parental social support affected academic procrastination and adversity quotient. Therefore, it is
421 deemed necessary to pay special attention to the COVID-19 impact on parents, allowing them to
422 provide support for their children optimally. In addition, there were also results showing that the
423 adversity quotient contributed to the relationship between parental social support and academic
424 procrastination. These findings have a key contribution to the academic procrastination literature, given
425 that studies that use adversity quotient as a mediator have thus far been minimal.

426 This research came with several limitations. Uneven distribution of education facilities
427 throughout Indonesia might have influenced the research results. This study was convened only to
428 subjects in Magelang, and Madrasah Aliyah students in that. Future studies may be conducted at
429 international schools and with the involvement of subjects in a wider area in Indonesia. Other internal
430 and external factors may be examined in greater depth in future works since this study was restricted
431 only to parental social support and adversity quotient. Moreover, descriptive data of parents' situations
432 (e.g., occupation, educational status, and income) had yet to be revealed in this research. Hopefully,
433 future research may explain these data.

434 5. Conclusion

435 This study found that parental social support negatively contributed to academic procrastination
436 and adversity. Meanwhile, the adversity quotient negatively contributed to academic procrastination
437 and mediated the relationship between parental social support and academic procrastination. This
438 research also discovered that each aspect of the variables demonstrated a significant correlation.
439 Finally, both parental social support and adversity quotient could negatively predict every aspect of
440 academic procrastination.

441 6. Conflict of Interest

442 The authors declare that the research was conducted without any commercial or financial
443 relationships construed as a potential conflict of interest.

444 7. Data Availability Statement

445 The data supporting this work's results are available from the corresponding author, AM
446 (alif.muarifah@pgpaud.uad.ac.id), upon reasonable request.

447 8. Author Contributions

448 Conceptualization: A.M. Data curation, A.M., N.H.R, and F.O. Formal analysis: M., Z.B.S.M.,
 449 N.H.R, and F.O. Investigation, A.M., M., and Z.B.S.M. Methodology: A.M., M., Z.B.S.M and
 450 N.H.R; Validation, A.M., M., and Z.B.S.M. Visualization: N.H.R and F.O. Writing—initial draft
 451 preparation, A.M. Writing—review and editing: A.M., M., Z.B.S.M., N.H.R, and F.O. All authors
 452 have read and agreed to the published version of the manuscript.

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Lampiran 4.

Revisi Tabel

Supplementary Material

1 Supplementary Tables

Table 1. Descriptive Data of the Variables

Variable	N	Minimum	Maximum	Mean	SD
Academic procrastination	256	30	88	55.96	8.973
Parental support	256	51	103	80.24	9.607
Advercity quotient	256	47	85	66.09	6.486

Table 2. Frequency Distributions of the Variables

Category	Procrastination		Parental support		Advercity quotient	
	Frequency	%	Frequency	%	Frequency	%
Low	43	16.80%	45	17.58%	41	16.02%
Moderate	179	69.92%	169	66.02%	174	67.97%
Hight	34	13.28%	42	16.41%	41	16.02%

Table 3. Model Goodness of Fit Test

No	Goodness of Fit Index	Cut-Off Value	Result	Conclusion
1	Sig. Probability	≥ 0.05	0.011	Marginal Fit
2	Df	> 0	51	Good Fit
3	CMIN/DF	≤ 2.00	1.508	Good Fit
4	GFI	≥ 0.90	0.954	Good Fit
5	NFI	≥ 0.90	0.987	Good Fit
6	CFI	≥ 0.90	0.996	Good Fit
7	IFI	≥ 0.90	0.996	Good Fit
8	TLI	≥ 0.90	0.994	Good Fit
9	RMSEA	≤ 0.08	0.045	Close Fit

Table 4. Hypotheses Analysis Results

Path	Coefficient (β)	P value
<i>Direct effect</i>		
Parental support \rightarrow Academic procrastination	-.299	0.000***
Parental support \rightarrow Adversity quotient	.411	0.000***
Adversity quotient \rightarrow Academic procrastination	-.339	0.000***
<i>Indirect effect</i>		
Parental support \rightarrow Adversity quotient \rightarrow Academic procrastination	-.139	0.000***
<i>Total effect</i>		
Parental support \rightarrow Academic procrastination	-.438	0.000***

Table 5. Correlation between Variable Aspects

	PR.1	PR.2	PR.3	PR.4	PS.1	PS.2	PS.3	PS.4	AQ.1	AQ.2	AQ.3	AQ.4
PR.1	1											
PR.2	0.785	1										
PR.3	0.808	0.717	1									
PR.4	0.709	0.556	0.698	1								
PS.1	-0.403	-0.414	-0.402	-0.421	1							
PS.2	-0.374	-0.368	-0.376	-0.384	0.989	1						
PS.3	-0.357	-0.351	-0.352	-0.367	0.978	0.979	1					
PS.4	-0.330	-0.332	-0.331	-0.339	0.982	0.987	0.980	1				
AQ.1	-0.425	-0.361	-0.399	-0.388	0.406	0.406	0.407	0.415	1			
AQ.2	-0.413	-0.346	-0.396	-0.382	0.391	0.389	0.390	0.399	0.97	1		
AQ.3	-0.429	-0.366	-0.408	-0.372	0.396	0.395	0.399	0.401	0.956	0.935	1	
AQ.4	-0.410	-0.348	-0.402	-0.373	0.396	0.393	0.394	0.405	0.972	0.962	0.948	1

Note:

$p < 0.01$.

Academic procrastination aspects:

PR.1: Putting off starting or completing a task; PR.2: Completing a task late; PR.3: A gap between the plan and the actual performance; and PR.4: Performing a more pleasurable activity.

Parental support aspects:

PS.1: Emotional support; PS.2: Companionship Support; PS.3: Information Support; and PS.4: Instrumental support.

Adversity quotient aspects:

AQ.1: Self-regulation; AQ.2: Endurance; AQ.3: Reach; and AQ.4: Ownership

Table 6. Results of Regression Test on the Aspects of the Variables

	Coefficient (β)	P value
<i>Parental social support \rightarrow Adversity quotient aspects</i>		
Self-regulation	0.407	0.000***
Endurance	0.402	0.000***
Reach	0.396	0.000***
Ownership	0.403	0.000***
<i>Adversity quotient \rightarrow Academic procrastination aspects</i>		
Putting off starting and completing a task	-0.318	0.000***
Completing a task late	-0.278	0.000***
A gap between the plan and the actual performance	-0.294	0.000***
Performing a more pleasurable activity	-0.256	0.000***
<i>Parental social support \rightarrow Academic procrastination aspects</i>		
Putting off starting and completing a task	-0.411	0.000***
Completing a task late	-0.360	0.000***
A gap between the plan and the actual performance	-0.381	0.000***
Performing a more pleasurable activity	-0.331	0.000***

2 Supplementary Figures

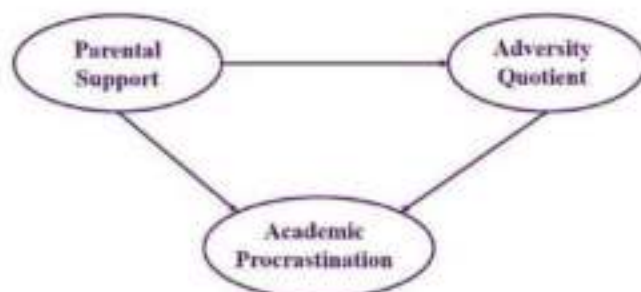


Figure 1. Research hypotheses model

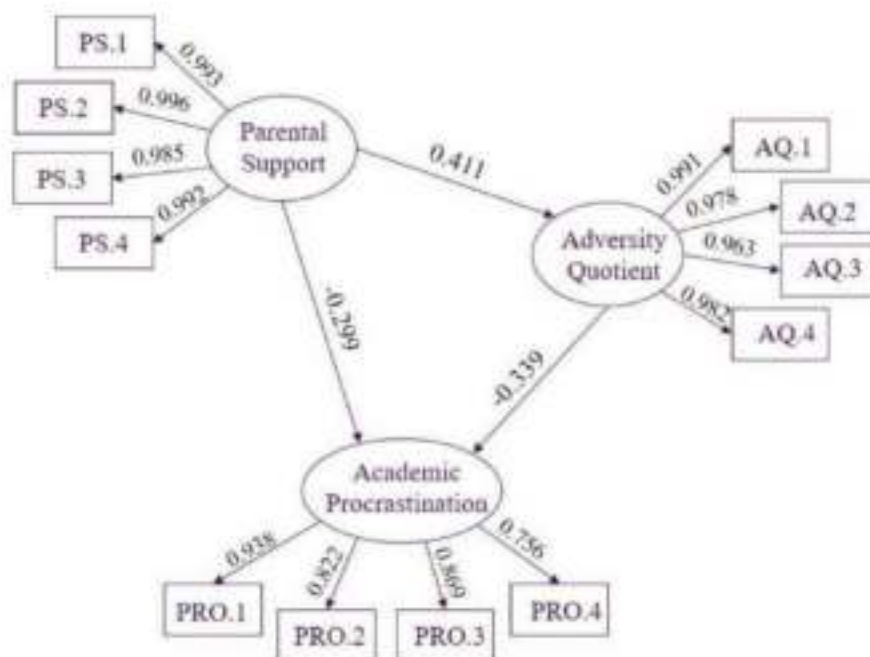


Figure 2. Parental Support-Adversity Quotient-Academic Procrastination Model

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Students' academic procrastination during the COVID-19 pandemic: How does adversity quotient mediate parental social support?

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The COVID-19 has had a widespread impact on all aspects of life. The government has undertaken numerous restrictive attempts to sever the virus transmission chain. In the education sector, one of the attempts is to apply certain learning models. For instance, the online model has been used in place of the face-to-face one across all academic and non-academic services. Educators have faced several obstacles, including academic procrastination. Academic procrastination refers to intentionally putting off working on an assignment, which negatively influences academic achievement. This study aimed to examine the role of parental social support in academic procrastination with the mediation of the adversity quotient. The subjects consisted of 256 state Madrasah Aliyah students in Magelang aged 15–18 years ($M = 16.53$, $SD = 1.009$). Data collection employed the academic procrastination scale, parental social support scale, and adversity quotient scale. Data analysis used descriptive statistics and structural equation modeling (SEM) with the aid of the IBM SPSS 23 and AMOS Graphics 26. The research results showed that all variables fell into the medium category. Parental social support had a negative role on academic procrastination and a positive one on adversity quotient. Meanwhile, the adversity quotient had a negative role in academic procrastination and a significant role as a mediator in the relationship between parental social support and academic procrastination. Therefore, parental social support is required to increase students' adversity quotient in suppressing academic procrastination. Special attention from parents to students is thus critical during the COVID-19 pandemic, with the mediation of adversity quotient.

KEYWORDS

adversity quotient (AQ), academic procrastination, COVID-19, school education, parental social support

Introduction

During the COVID-19 pandemic, learning and teaching activities are experiencing systemic alterations from offline to online-based. Nearly all over the world, students face the challenges of independent learning, learning on the computer, and a lack of contact with teachers and peers, thereby demanding sound time management (Pelikan et al., 2021). This learning model is unprecedented in educational systems around the globe, and this is particularly true in Indonesia, where understanding of information technology (IT) has yet to be equal on all lines. The online learning model requires thorough, systematic preparation, but the state of emergency in which it is implemented has spawned a multitude of issues, both academic and non-academic. A frequent issue among them is academic procrastination, which refers to students' purposeful deferment in various academic activities, which is extensively impactful on their future (Wiguna et al., 2020; Pelikan et al., 2021; Tian et al., 2021; Laia et al., 2022). There has been a significant rise in academic procrastination among students (Tezer et al., 2020; Pelikan et al., 2021; Buana et al., 2022), and this phenomenon during the online learning policy is confirmed by previous studies that suggest that online learning is linked to the postponement of completing tasks related to the learning (Steel and Klingsieck, 2016). Students procrastinate although it may lead to negative consequences (Goroshit, 2018). It results in students' low final grades (Kljajic and Gaudreau, 2018). Students put off completing academic work for several reasons, do and submit tasks late, and face difficulties in time management in learning (Laia et al., 2022). If the indiscipline habit is left uncorrected, it will result in a bad mentality for students' psychological development (Zacks and Hen, 2018; Amir et al., 2020; Maqableh and Alia, 2021; Peixoto et al., 2021; Pelikan et al., 2021; Prasetyanto et al., 2022).

Despite realizing that it has negative effects, students still engage in academic procrastination for internal or external reasons. Still, due to the pandemic situation, some teachers consider it normal and understandable. Some factors associated with academic procrastination are weak learning dedication, low learning performance, and poor learning objectives achievement (Tian et al., 2021). Academic procrastination is spurred by certain situations, including task difficulty and low task attractiveness, being compelled to learn autonomously, and unattractive teacher characteristics (Klingsieck, 2013). Students experience difficulties in learning and managing the learning process and lack independence and maturity, thereby finding it difficult to motivate themselves, especially when faced with difficult, lengthy learning tasks (low adversity quotient) (Zacks and Hen, 2018). Other reasons include the unattractive way of delivering materials, difficulty adapting to online learning, connection instability, and extra financial burden to access the Internet (Amir et al., 2020; Maqableh and Alia, 2021; Peixoto et al., 2021; Pelikan et al., 2021; Prasetyanto et al., 2022). In

addition, there are issues of ineffectively delivered curriculum and a lack of interaction between teacher and student or between student and student (Mohalik and Sahoo, 2020). Students also have difficulty concentrating when learning, psychological problems, and poor time management (Maqableh and Alia, 2021). They are often confused about completing their tasks because the instructions are hard to understand (Peixoto et al., 2021). Besides, procrastination can also result from laziness in completing the tasks from the teacher and low learning motivation (Pelikan et al., 2021). The following issues are also present: the homework given by the teacher outweighs the assignment given during face-to-face meetings; the intensity of looking at a laptop or handphone screen causes disturbance to health; the conditions at home make it difficult to stay focused; being burdened by other works; vagueness in the teacher's explanation; and difficulty discussing with or asking questions to the teacher (Prasetyanto et al., 2022). Finally, the unattractiveness of the online learning model serves as an important factor in the high degree of procrastination during COVID-19 (Latipah et al., 2021; Prasetyanto et al., 2022).

Following the description above, it is necessary to further scrutiny the students' academic procrastination during the COVID-19 pandemic. However, research among senior high school students in Indonesia is still limited to the non-Islamic-based school (Latipah et al., 2021; Habibi et al., 2022; Irawan and Widyastuti, 2022). Studies showed that 47.2% of senior high school (SMA) students in Temanggung engaged in a medium level of academic procrastination (Latipah et al., 2021), 34.3% of vocational high school (SMK) students in Bojonegoro demonstrated a medium level of academic procrastination (Irawan and Widyastuti, 2022), and 652 or 78.6% state senior high school (SMAN) students in Mojokerto engaged in a medium level of academic procrastination (Habibi et al., 2022). Meanwhile, in Indonesia, Islamic-based senior high schools named Madrasah Aliyah also exist, numbering 9,131 or accounting for 24.6% of all schools at that level (Statistik, 2021; Kementerian Agama, 2022). Madrasah Aliyah (MA) is a public high school with an Islamic character administered by the Department of Religious Affairs (Bastari et al., 2018). The curriculum load borne by MA students is higher than that of SMA and SMK students. The public senior high school (SMA) curriculum emphasizes the student's theoretical mastery by providing in-depth general subjects (Putri, 2020). Meanwhile, the vocational high school (SMK) focuses more on students' vocational skills to ensure students' readiness to work in certain work fields (e.g., engineering, cuisine, hospitality, and craft industries, among others) (Putri, 2020). In Islamic high school (MA), students should learn Islamic knowledge, characters, and general knowledge like in SMA (Alawiyah, 2014). This difference poses MA students with issues of greater complexity in online learning during COVID-19 than those faced by non-Islamic-based school students (Latipah et al., 2021). Previous studies revealed that in online learning during COVID-19,

40.4% of students of state Madrasah Aliyyahs in Bengkulu demonstrated a high level of academic procrastination, and 28.6% even did a very high level of procrastination (Buana et al., 2022). These findings contrast with the SMA and SMK cases, where the students' procrastination was within the medium category. Research on procrastination in the Madrasah Aliyah environment during COVID-19 is still minimal. Previous studies have examined the roles of self-efficacy and emotional intelligence on procrastination, but it was only focused on personal factors (Buana et al., 2022).

To enrich the literature on academic procrastination during online learning implementation, this research focused on Madrasah Aliyah. It included external (parental social support) and internal (personal) factors in reducing academic procrastination. Over the course of COVID-19, online learning took place at home. Therefore, parents' involvement during the learning implementation is critical. Moreover, parents are the most prominent and pivotal figures in the provision of resources for children, hence holding a central place in creating social and emotional contexts (Wray-Lake et al., 2022).

Parental social support and academic procrastination in online learning

During COVID-19 in 2021, Indonesia still implemented online learning across all levels, including senior high school. Throughout online learning, students require parental social support for smooth learning, both financially and psychologically, since parents have the primary responsibility for their children's education, including establishing social and emotional communication. However, many parents in Indonesia were found to be faced with psychological, social, and financial problems during COVID-19 (Kaligis et al., 2020; Alam et al., 2021; Anindyajati et al., 2021). Anxiety and stress problems in the family were also emerging (Anindyajati et al., 2021). Various hoaxes have triggered panic and fear (Kaligis et al., 2020). Problems also encompassed family's financial problems caused by the social distancing policy, including decreased income, increased unemployment rate, and difficulty finding a new job, all of which undermined parental social support for children (Alam et al., 2021). Study results revealed that parents with children attending school during the early stage of COVID-19 in Indonesia were suffering from a moderate stress level due to having to allocate time for working from home and assisting their children in studying from home at the same time. Parents were also overwhelmed by their children's assignments, especially mothers whose time was already mostly spent doing household chores and working from home (Susilowati and Azzasyofia, 2020). Thorell et al. (2021) discovered that online learning harmed parents' lives by increased stress levels due to high workloads, fear that their children's academic performance would drop, social isolation, and domestic conflict.

Although many parents encounter a multitude of difficulties that lead to psychological, social, and financial issues, parental social support occupies a core place within a crowded situation, raising students' spirit albeit being under restrictions (Ikeda and Echazarra, 2021; Klootwijk et al., 2021; Maqableh and Alia, 2021). Research results reported a significant increase in parental social support during online learning from face-to-face learning, where parents felt a sense of responsibility for the online learning process (Wray-Lake et al., 2022). Parental social support appropriate to students' needs during online learning may take the following forms: an internet facility, a material device such as a laptop or personal computer, and a home with a conducive environment for the learning (Maqableh and Alia, 2021).

Being related to various learning problems during online learning implementation, parental social support helps overcome academic procrastination optimally. A United States-based education longitudinal study on 15,240 ten graders showed that parents' involvement in their children's education, both at home and in school, had a significant effect on the children's learning success (Benner et al., 2016). Results of another study on 313 upper secondary school students in Turkey showed that social support from the family contributed to academic procrastination (Erzen and Çikrikci, 2018). Parental social support is pivotal and considerably influential to students' social, psychological, and academic functions (Won and Yu, 2018). It was also reported that 177 United States parents of kindergarten to senior high school-aged children found it difficult to motivate their children to learn online (Garbe et al., 2020). Meanwhile, parental emotional support, such as motivational support, is grievously needed by students (Ikeda and Echazarra, 2021; Klootwijk et al., 2021). A lack of attention and learning motivation from parents for children are among the most responsible for the high level of academic procrastination behavior in online learning (Wulandari et al., 2021).

The effects of parental social support and adversity quotient on academic procrastination

Parental social support affects students' adversity quotient and, subsequently academic procrastination. Parents, who are responsible for their children's education and future, feel called to think about how their children will reach success in learning, so they try to provide their children with social and emotional support well and openly. This support raises the children's motivation and spirit to put an effort to reach success, giving them the strength to take on challenges and hold on in the face of obstacles (Hidayati and Taufik, 2020). Adversity quotient is how well an individual persists in hardships and turns difficulties into opportunities (Stoltz, 2006). A qualitative study on students

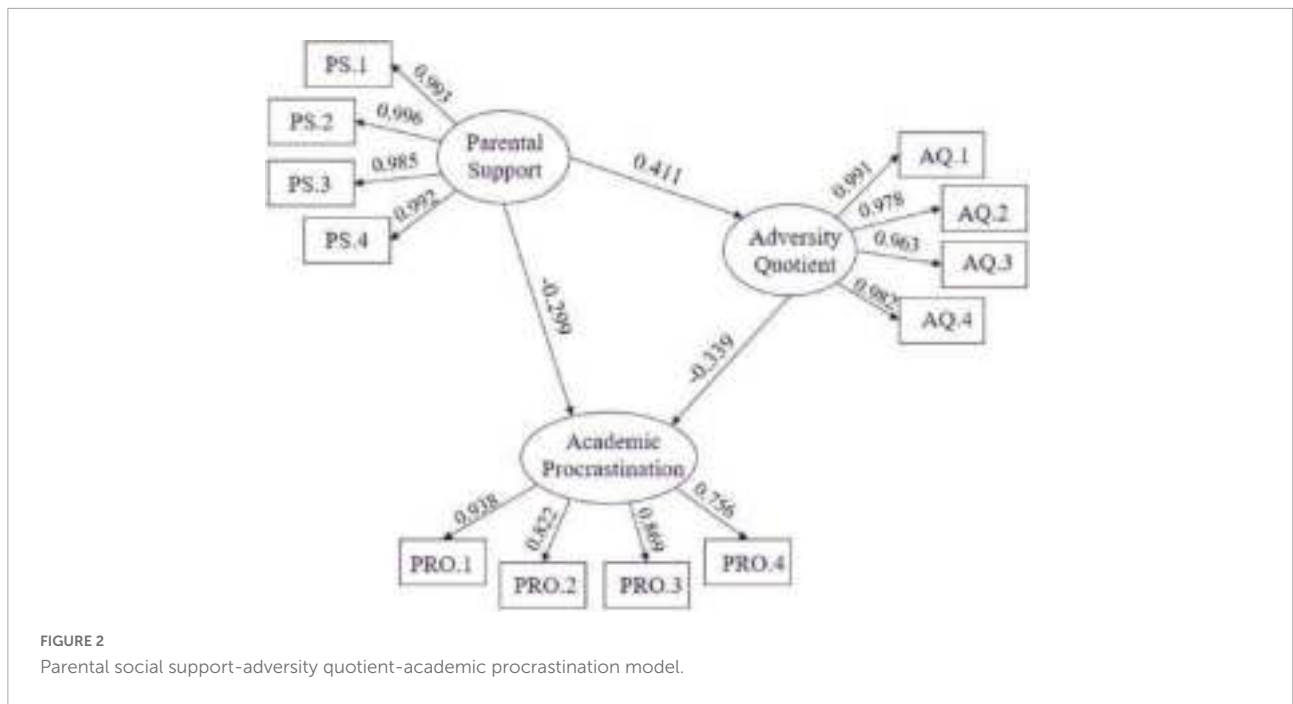
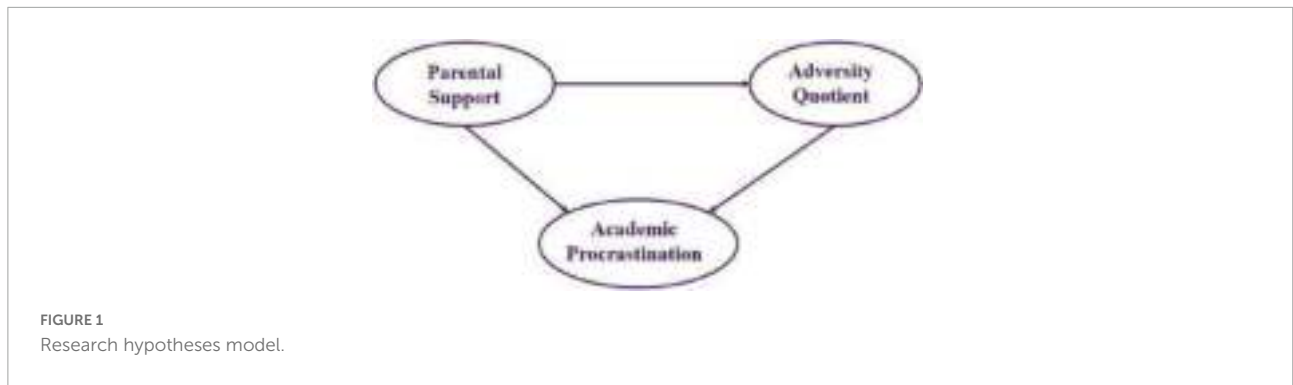


TABLE 1 Descriptive data of the variables.

Variable	N	Minimum	Maximum	Mean	SD
Academic procrastination	256	30	88	55.96	8.973
Parental support	256	51	103	80.24	9.607
Advercity quotient	256	47	85	66.09	6.486

from low-income (poor) families and students falling victim to domestic violence or broken homes showed that parents had a strong association with adversity quotient development because the family is a motivator for students' improved endurance (Hidayati and Taufik, 2020). Therefore, parents play an essential role in improving students' adversity quotient. This is supported by the results of a study on 232 first-year students in Makassar, which revealed that parental social support had a role in forming the ability to cope with academic obstacles during the COVID-19 period (Sihotang and Nugraha, 2021). Parental social support may give the children opportunities to make decisions, provide

a clear, consistent guide to their expectations and rules, and give the students adaptive and constructive responses to face academic obstacles (Sihotang and Nugraha, 2021).

Adversity quotient is essential for students during COVID-19. Given that during online learning, senior high school students in Indonesia face obstacles and barriers that may influence their learning quality and outcomes (Amir et al., 2020; Prasetyanto et al., 2022). With an adversity quotient, students can take situations under control, take advantage of opportunities, and have higher success chances (Juwita and Usodo, 2020). Research also unveiled that academic

procrastination was influenced by the adversity quotient (Tuasikal et al., 2019). It stated that the higher the student's adversity quotient, the lower the procrastination tendency, and the lower the student's adversity quotient, the higher the procrastination tendency (Tuasikal et al., 2019).

Students need an adversity quotient to successfully deal with problems and fulfill their tasks and responsibilities in the online learning field (Safi'i et al., 2021) and tackle academic issues (Parvathy and Praseeda, 2014). Students with high adversity quotients have a better self-motivation ability. In contrast, those with low adversity quotients will tend to give up and yield easily display pessimism, and exhibit a negative attitude (Stoltz, 2006). Earlier research findings showed that the adversity quotient affected students' ability to adapt to online learning from offline learning, not excluding the ability to access and use online learning to establish a learning standard (Safi'i et al., 2021).

Present study

According to the explanation above, especially in the case of Madrasah Aliyah students, online learning has caused high levels of academic procrastination behavior. Earlier studies have explained that parental social support had a role in adversity quotient and academic procrastination, while adversity quotient had a role in academic procrastination. It can be concluded that parental social support contributes to students' adversity quotient and subsequently affects academic procrastination. Thus far, there is minimal research on the mediating role of adversity quotient in the relationship between parental social support and academic procrastination. Therefore, the goal pursued by this research was to explain how parental social support influences academic procrastination with the mediation of adversity quotient in the case of Madrasah Aliyah students. The hypotheses model of this research is presented in Figure 1, while the hypotheses themselves are as follows:

H₁: Parental social support has a negative role in academic procrastination.

H₂: Parental social support has a positive role in the adversity quotient.

H₃: Adversity quotient has a negative role in academic procrastination.

H₄: Adversity quotient has a mediating role in the relationship between parental social support and academic procrastination.

Methods research participants and procedure

As many as 256 students from two Public Madrasah Aliyahs in Magelang aged 15–18 years ($M = 16.53$, $SD = 1.009$), consisting of 131 men and 125 women students, participated in this research. The participants were recruited by proportionate random sampling. This research acquired a research permit from Ahmad Dahlan University (F4/387/PS44/D.66/IV/2021) and from schools where this research was conducted. The researchers coordinated with school counselors to access participants' phone numbers and form a WhatsApp group. Data collection was carried out using the Google Forms application. The researchers provided information on the research and instructions on completing the questionnaire via the WhatsApp group. Participants' informed consent was asked ahead of the Google Forms questionnaire completion. Each participant spent around 15 min collecting the data. This research was conducted in July 2021.

Instruments

The academic procrastination scale was formulated using a 24-item Likert scale about the procrastination signs according to Ferrari Jonson and McCown: students put off starting and finishing a task, students complete a task late, there is a gap between the plan and the actual performance, and students prefer doing a more pleasurable activity (Ferrari et al., 1995). Four answer alternatives were used: SA (strongly agree), A (agree), D (disagree), and SD (strongly disagree). A higher score indicates a higher level of students' procrastination. The academic procrastination scale was deemed valid (chi-square value of 14.58; $p = 0.01$), reliable (Cronbach's alpha = 0.803), and having a fit model (CFI = 0.983; GFI = 0.73; TLI = 0.948; RMSEA = 0.098).

The parental social support scale was composed of 28 items. It took on the form of a Likert scale that was formulated about the social support aspects according to Sarafino and Smith; emotional support (a. empathy, b. comforting support); companionship support (a. spending time together, b. having a mutually supportive companionship bond); information support (a. receiving suggestions and advice, b. acquiring information); and instrumental support (a. non-material direct aid, b. action direct aid) (Sarafino and Smith, 2014). Four answer alternatives were used, namely SA (strongly agree), A (agree), D (disagree), and SD (strongly disagree). A higher score indicates higher students' perceived parental social support. The parental social support scale was deemed valid (chi-square value of 15.978; $p = 0$), reliable (Cronbach's alpha = 0.863), and having a fit model (CFI = 0.995; GFI = 0.71; TLI = 0.985; RMSEA = 0.099).

Lastly, the adversity quotient scale was a Likert scale with 22 items. This scale referred to Stolz's dimensions, namely

TABLE 2 Frequency distributions of the variables.

Category	Procrastination		Parental support		Adversity quotient	
	Frequency	%	Frequency	%	Frequency	%
Low	43	16.80%	45	17.58%	41	16.02%
Moderate	179	69.92%	169	66.02%	174	67.97%
Hight	34	13.28%	42	16.41%	41	16.02%

TABLE 3 Model goodness of fit test.

No	Goodness of fit index	Cut-off value	Result	Conclusion
1	Sig. Probability	= 0.05	0.011	Marginal Fit
2	Df	> 0	51	Good Fit
3	CMIN/DF	= 2.00	1.508	Good Fit
4	GFI	= 0.90	0.954	Good Fit
5	NFI	= 0.90	0.987	Good Fit
6	CFI	= 0.90	0.996	Good Fit
7	IFI	= 0.90	0.996	Good Fit
8	TLI	= 0.90	0.994	Good Fit
9	RMSEA	= 0.08	0.045	Close Fit

TABLE 4 Hypotheses analysis results.

Path	Coefficient (β)	P value
Direct effect		
Parental support → Academic procrastination	-0.299	0.000***
Parental support → Adversity quotient	0.411	0.000***
Adversity quotient → Academic procrastination	-0.339	0.000***
Indirect effect		
Parental support → Adversity quotient → Academic procrastination	-0.139	0.000***
Total effect		
Parental support → Academic procrastination	-0.438	0.000***

control, ownership, reach, and endurance (Stoltz, 2006). Five alternative responses were provided, namely SA (strongly agree), A (agree), N (neutral), D (disagree), and SD (strongly disagree). A higher score indicates a higher student's adversity quotient. The adversity quotient scale was deemed valid (chi-square value of 6.278; $p = 0.043$) and reliable (Cronbac's alpha = 0.863), and having a fit model (CFI = 0.998; GFI = 0.989; TLI = 0.994; RMSEA = 0.092).

Data analysis

Statistical-descriptive analysis was employed to gain an overview of each research variable. Structural Equation Modeling (SEM) was applied to assess the mediating role

of adversity quotient in the relationship between parental social support and academic procrastination. This technique is commonly used to see the structural relationship between the measured variable and the latent construct by performing a simultaneous analysis like linear regression and path estimates. This study also measured the relationship between each aspect of parental social support and adversity quotient and academic procrastination, and the relationship between each aspect of parental social support and academic procrastination. It was done to identify the aspect with the highest contribution to academic procrastination and adversity quotient. The normality was done as a prerequisite of SEM-based on covariance. The goodness of fit index was evaluated using the following indices: probability, DF, CMIN/DF, GFI, NFI, CFI, IFI, TLI, and RMSEA (Kline, 2015). This research used the IBM SPSS 23 for the descriptive statistical analysis and normality test, and AMOS Graphics 26 for the Structural Equation Modeling.

Results

Variable descriptive data

This research showed that academic procrastination, parental social support, and adversity quotient scores were within the 30–88, 51–103, and 47–85 ranges, respectively. Based on the mean scores and frequency distributions of the variables, most of the participants engaged in a medium level of academic procrastination (69.92%), perceived a medium level of parental social support (66.02%), and had an adversity

TABLE 5 Correlation between variable aspects.

	PR.1	PR.2	PR.3	PR.4	PS.1	PS.2	PS.3	PS.4	AQ.1	AQ.2	AQ.3	AQ.4
PR.1	1											
PR.2	0.785	1										
PR.3	0.806	0.717	1									
PR.4	0.709	0.556	0.698	1								
PS.1	-0.403	-0.414	-0.402	-0.421	1							
PS.2	-0.374	-0.368	-0.376	-0.384	0.989	1						
PS.3	-0.357	-0.351	-0.352	-0.367	0.978	0.979	1					
PS.4	-0.330	-0.332	-0.331	-0.339	0.982	0.987	0.980	1				
AQ.1	-0.425	-0.361	-0.399	-0.388	0.406	0.406	0.407	0.415	1			
AQ.2	-0.413	-0.346	-0.396	-0.382	0.391	0.389	0.390	0.399	0.97	1		
AQ.3	-0.429	-0.366	-0.408	-0.372	0.396	0.395	0.399	0.401	0.956	0.935	1	
AQ.4	-0.410	-0.348	-0.402	-0.373	0.396	0.393	0.394	0.405	0.972	0.962	0.948	1

$p < 0.01$.

Academic procrastination aspects:

PR.1: Putting off starting or completing a task; PR.2: Completing a task late; PR.3: A gap between the plan and the actual performance; and PR.4: Performing a more pleasurable activity.

Parental social support aspects:

PS.1: Emotional support; PS.2: Companionship Support; PS.3: Information Support; and PS.4: Instrumental support.

Adversity quotient aspects:

AQ.1: Self-regulation; AQ.2: Endurance; AQ.3: Reach; and AQ.4: Ownership.

quotient at the medium level (67.97%). The descriptive data of the variables are provided in Table 1, and the frequency distributions of the variables are presented in Table 2. Following the Kolmogorov-Smirnov test score and $p \geq 0.05$, the data in this study were normally distributed. The academic Procrastination showed a Kolmogorov - Smirnov value of 1.17 with $p = 0.129$. Parental social support showed a Kolmogorov - Smirnov score of 1.072 with $p = 0.2$. Adversity quotient showed a Kolmogorov - Smirnov of.957 with $p = 0.319$.

Goodness of fit

The overall model fit is presented in Table 3. Based on Table 3, the Goodness of Fit index showed good fit according to DF, CMIN/DF, GFI, NFI, IFI, and TLI and close fit according to RMSEA. Meanwhile, the sig. Probability demonstrated marginal fit, which was still acceptable. Therefore, the model goodness of fit assumption used in this research was accepted.

Hypotheses test

The hypotheses were tested to determine whether parental social support had a direct effect on academic procrastination or whether it had an indirect effect after mediation by adversity quotient. The analysis results are shown in Table 4. The findings revealed that parental social support had a significant negative role in academic procrastination ($\beta = -0.299$; $p < 0.01$), parental social support had a significant

TABLE 6 Results of regression test on the aspects of the variables.

	Coefficient (β)	P value
Parental social support —> Adversity quotient aspects		
Self-regulation	0.407	0.000***
Endurance	0.402	0.000***
Reach	0.396	0.000***
Ownership	0.403	0.000***
Adversity quotient —> Academic procrastination aspects		
Putting off starting and completing a task	-0.318	0.000***
Completing a task late	-0.278	0.000***
A gap between the plan and the actual performance	-0.294	0.000***
Performing a more pleasurable activity	-0.256	0.000***
Parental social support —> Academic procrastination aspects		
Putting off starting and completing a task	-0.411	0.000***
Completing a task late	-0.360	0.000***
A gap between the plan and the actual performance	-0.381	0.000***
Performing a more pleasurable activity	-0.331	0.000***

positive role in adversity quotient ($\beta = 0.411$; $p < 0.01$), adversity quotient had a significant negative role in academic procrastination ($\beta = -0.339$; $p < 0.01$), and adversity quotient had a mediating role in the relationship between parental social support and academic procrastination ($\beta = -0.139$; $p < 0.01$). Parental social support had a greater role in

743 academic procrastination after mediation by adversity quotient
744 ($\beta = -0.438; p < 0.01$).

745 This research also showed that every variable aspect had a
746 significant correlation ($p < 0.01$), as seen in [Table 5](#). Parental
747 social support had a significant positive role in each adversity
748 quotient aspect and a significant negative role in each academic
749 procrastination aspect. In contrast, the adversity quotient
750 negatively affected all academic procrastination aspects. Parental
751 social support had the greatest role in the control aspect of
752 the adversity quotient. Parental social support and adversity
753 quotient had the greatest roles in academic procrastination:
754 “putting off starting and completing a task” and “a gap between
755 the plan and the actual performance.” The regression test results
756 on the variables’ aspects can be seen in [Table 6](#).

758 Discussion

759 This research demonstrated that most Madrasah Aliyah
760 participants engaged in academic procrastination during online
761 learning in the COVID-19 pandemic. Meanwhile, previous
762 research found that academic procrastination among state
763 Madrasah Aliyah students in Bengkulu fell into the high
764 category due to minimum knowledge and skills for using
765 learning media, difficulties participating in online learning
766 because of Internet access issues, and, in the case of delays in
767 assignment submission, poor understanding of the materials
768 and concepts delivered by the teacher during online learning
769 ([Buana et al., 2022](#)). This gap might be attributable to the
770 demographic aspect related to Internet access. As reported by
771 UNICEF, only 54.49% of households in Bengkulu Province
772 had Internet access, while in Central Java Province, of which
773 Magelang is part, the figure was 66.73% ([UNICEF, 2020](#)). The
774 previously reported limitations in access to affordable Internet
775 services and suitable digital devices have caused it difficult
776 for the larger portion of students to participate in the online
777 learning process ([UNICEF, 2020](#)).

778 These findings were in line with previous studies conducted
779 on SMA and SMK students in the same province this research
780 was conducted, which reported medium levels of academic
781 procrastination ([Latipah et al., 2021](#); [Habibi et al., 2022](#)). This
782 portrays that the greater curricular burden borne by MA
783 students than by their SMA and SMK peers in Central Java did
784 not necessarily make the former procrastinate to a greater degree
785 than the latter. A further investigation concerning this matter is
786 thus needed since other factors may also influence it.

787 The next finding was that most of the students perceived
788 their parents’ support to be within the moderate category,
789 suggesting that parental social support for MA students in
790 implementing online learning was fair food. These findings
791 align with previous research, which reported a moderate level
792 of parental social support after an increase from when learning
793 was conducted face-to-face ([Wray-Lake et al., 2022](#)). It was also

794 found that most students had a moderate level of adversity
795 quotient and that many were even found to demonstrate a high
796 level of adversity quotient. This depicts that students had a fairly
797 good adversity quotient ([Wray-Lake et al., 2022](#)).

798 This research revealed that parental social support had
799 a negative role in academic procrastination. This explains
800 that the better the parental social support perceived by the
801 students, the lower the academic procrastination. Contrarily, the
802 lower the parental social support was in the students’ perception,
803 the higher the academic procrastination level. Pre-pandemic
804 research supported this finding, stating that parental social
805 support could suppress academic procrastination behavior
806 ([Erzen and Çikrikci, 2018](#)). This means that both during and
807 before the COVID-19 pandemic, parental social support played
808 a role in academic procrastination. This result also confirmed
809 that parents held a key role in students’ learning process,
810 particularly during COVID-19 ([Wray-Lake et al., 2022](#)).

811 Every aspect of academic procrastination, parental social
812 support, and adversity quotient also demonstrated correlation.
813 Parental social support contributed negatively to all academic
814 procrastination aspects. Parental social support, particularly
815 instrumental support, had the most significant role in the delay
816 in starting or completing a task. Instrumental support refers
817 to providing financial aid, material resources, or necessary
818 services ([Murray et al., 2016](#)). The results showed that support in
819 financial aids, devices, and services helped students suppress the
820 rate at which they put off starting and completing a task. This
821 is because, during the online learning process, students need
822 parental social support for smooth learning in terms of material
823 (money to buy Internet quotas), device (laptop or personal
824 computer), and home condition (a conducive environment for
825 learning) ([Maqableh and Alia, 2021](#)).

826 In addition, parental social support was also found to
827 positively contribute to the adversity quotient. This explains that
828 the better the parental social support perceived by students, the
829 higher the adversity quotient, and vice versa. This finding is in
830 parallel with the finding of the qualitative study by [Hidayati and
831 Taufik \(2020\)](#), according to which the social support from the
832 family served as an additional factor in the adversity quotient.
833 It was also supported by another study on first-year students,
834 according to which parental social support had a role in forming
835 the ability to cope with academic obstacles during COVID-19
836 ([Sihotang and Nugraha, 2021](#)). Parental social support promotes
837 students’ adaptive and constructive responses to academic
838 challenges field ([Sihotang and Nugraha, 2021](#)). Results of a
839 literature review revealed that the support and encouragement
840 from parents in the forms of praises for the child’s performance,
841 progress, and efforts, attention to the child’s self and their school
842 performance, and provision of a conducive environment and
843 materials for the child’s learning predicted the child’s academic
844 achievements ([Boonk et al., 2018](#)).

845 According to this study, parental social support had
846 the most considerable contribution to the control aspect of
847

the adversity quotient. This shows that senior high school students still needed parents' aid in positively controlling their responses to coping with online learning difficulties. Senior high school students are adolescents with a higher degree of independence than in the previous phases and with a need for self-autonomy (Branje et al., 2021). However, this aspect is still in a developmental stage and thus requires support from parents who serve as the primary support system for these senior high school students (Kagiticibasi, 2013). As stated previously, this research also discovered that all parental social support aspects, namely emotional support, companionship support, information support, and instrumental support, were positively correlated with this control aspect of the adversity quotient, with the last of the four demonstrating the highest degree of correlation. This shows that the fulfilling facilities aided students in controlling their constructive responses to online learning difficulties. Previous research stated that students experienced hardships during online learning due to non-conducive home environments, bad Internet connections, and financial burden for purchasing Internet quotas (Amir et al., 2020; Prasetyanto et al., 2022).

The further finding indicated that the adversity quotient negatively contributed to academic procrastination. The higher the adversity quotient of the student, the lower the academic procrastination, and the lower the adversity quotient, the higher the academic procrastination. In other words, the adversity quotient helped students respond to difficulties in online learning positively, hence minimizing academic procrastination behavior. This finding supported earlier research on 218 state Madrasah Aliyah students in Pontianak, Indonesia, according to which adversity quotient influenced students' adaptability from offline to online learning, including in terms of the ability to access and use online learning to establish a learning standard (Safi'i et al., 2021). Students with a higher adversity quotient found it easier to deal with any problems (Parvathy and Praseeda, 2014). It was also in line with the results by Tuasikal et al. (2019), which reported that the adversity quotient had a negative relationship with academic procrastination in students before the COVID-19 pandemic. This explains that the adversity quotient suppresses academic procrastination behavior in students of senior high school or higher educational levels during or before COVID-19.

Adversity quotient was found to have the highest contribution to students' putting off the start and completion of a task. Students with good adversity have a positive perception as they regard difficulties as opportunities (Stoltz, 2006). On the other hand, negative perception in handling tasks will cause students to be inclined toward delaying task completion (Pollack and Herres, 2020). Therefore, the adversity quotient reduces the tendency to put off starting or completing a task. In addition, the reach aspect of the adversity quotient exhibited the strongest correlation with postponing the start

or completion of a task. Students with high adversity quotient had reached their problem limits in the event they faced (Stoltz, 2006). They make improvements across various aspects to prevent the problem from affecting other aspects (Juwita and Usodo, 2020). This explains that students who focus on overcoming learning difficulties to minimize academic procrastination tend not to cause any other problems. As discovered in previous works, academic procrastination that is left unresolved may lead to other problems, such as low final grades (Kljajic and Gaudreau, 2018) low learning dedication, low learning performance, and outcomes (Tian et al., 2021), and decreased life satisfaction and increased psychological stress (Peixoto et al., 2021).

This research also demonstrated that the adversity quotient mediates the relationship between parental social support and academic procrastination. This means that students' ability to cope with difficulties could be enhanced by parental social support when they have a high adversity quotient, hence showing a low tendency for academic procrastination. Based on these findings, in conjunction with the existing literature, it is fair to say that parental social support drives the decline in academic procrastination (Erzen and Çikrikci, 2018) and, at the same time, contribute to the rise in the adversity quotient (Hidayati and Taufik, 2020; Sihotang and Nugraha, 2021). Furthermore, the adversity quotient has a role in students' tendency to engage in academic procrastination (Parvathy and Praseeda, 2014; Safi'i et al., 2021).

The results presented above have several important implications. They contribute to the literature on COVID-19 impacts on students' academic aspects and supporting factors. It was revealed that parental social support affected academic procrastination and adversity quotient. Therefore, it is deemed necessary to pay special attention to the COVID-19 impact on parents, allowing them to provide support for their children optimally. In addition, there were also results showing that the adversity quotient contributed to the relationship between parental social support and academic procrastination. These findings have a key contribution to the academic procrastination literature, given that studies that use adversity quotient as a mediator have thus far been minimal.

This research came with several limitations. Uneven distribution of education facilities throughout Indonesia might have influenced the research results. This study was convened only to subjects in Magelang, and Madrasah Aliyah students in that. Future studies may be conducted at international schools and with the involvement of subjects in a wider area in Indonesia. Other internal and external factors may be examined in greater depth in future works since this study was restricted only to parental social support and adversity quotient. Moreover, descriptive data of parents' situations (e.g., occupation, educational status, and income) had yet to be revealed in this research. Hopefully, future research may explain these data.

Conclusion

This study found that parental social support negatively contributed to academic procrastination and adversity. Meanwhile, the adversity quotient negatively contributed to academic procrastination and mediated the relationship between parental social support and academic procrastination. This research also discovered that each aspect of the variables demonstrated a significant correlation. Finally, both parental social support and adversity quotient could negatively predict every aspect of academic procrastination.

Data availability statement

Q20 The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Q21 The studies involving human participants were reviewed and approved by Lembaga Penelitian dan Pengabdian Kepada Masyarakat Universitas Ahmad Dahlan. Written informed consent from the participants' legal guardian/next of kin was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

Q22 AM: conceptualization and writing—initial draft preparation. AM, NR, and FO: data curation. MM, ZM, NR, and FO: formal analysis. AM, MM, and ZM: investigation and

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Students' academic procrastination during the COVID-19 pandemic: How does adversity quotient mediate parental social support?

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The COVID-19 has had a widespread impact on all aspects of life. The government has undertaken numerous restrictive attempts to sever the virus transmission chain. In the education sector, one of the attempts is to apply certain learning models. For instance, the online model has been used in place of the face-to-face one across all academic and non-academic services. Educators have faced several obstacles, including academic procrastination. Academic procrastination refers to intentionally putting off working on an assignment, which negatively influences academic achievement. This study aimed to examine the role of parental social support in academic procrastination with the mediation of the adversity quotient. The subjects consisted of 256 state Madrasah Aliyah students in Magelang aged 15–18 years ($M = 16.53$, $SD = 1.009$). Data collection employed the academic procrastination scale, parental social support scale, and adversity quotient scale. Data analysis used descriptive statistics and structural equation modeling (SEM) with the aid of the IBM SPSS 23 and AMOS Graphics 26. The research results showed that all variables fell into the medium category. Parental social support had a negative role on academic procrastination and a positive one on adversity quotient. Meanwhile, the adversity quotient had a negative role in academic procrastination and a significant role as a mediator in the relationship between parental social support and academic procrastination. Therefore, parental social support is required to increase students' adversity quotient in suppressing academic procrastination. Special attention from parents to students is thus critical during the COVID-19 pandemic, with the mediation of adversity quotient.

KEYWORDS

adversity quotient (AQ), academic procrastination, COVID-19, school education, parental social support

Introduction

During the COVID-19 pandemic, learning and teaching activities are experiencing systemic alterations from offline to online-based. Nearly all over the world, students face the challenges of independent learning, learning on the computer, and a lack of contact with teachers and peers, thereby demanding sound time management (Pelikan et al., 2021). This learning model is unprecedented in educational systems around the globe, and this is particularly true in Indonesia, where understanding of information technology (IT) has yet to be equal on all lines. The online learning model requires thorough, systematic preparation, but the state of emergency in which it is implemented has spawned a multitude of issues, both academic and non-academic. A frequent issue among them is academic procrastination, which refers to students' purposeful deferment in various academic activities, which is extensively impactful on their future (Wiguna et al., 2020; Pelikan et al., 2021; Tian et al., 2021; Laia et al., 2022). There has been a significant rise in academic procrastination among students (Tezer et al., 2020; Pelikan et al., 2021; Buana et al., 2022), and this phenomenon during the online learning policy is confirmed by previous studies that suggest that online learning is linked to the postponement of completing tasks related to the learning (Steel and Klingsieck, 2016). Students procrastinate although it may lead to negative consequences (Goroshit, 2018). It results in students' low final grades (Kljajic and Gaudreau, 2018). Students put off completing academic work for several reasons, do and submit tasks late, and face difficulties in time management in learning (Laia et al., 2022). If the indiscipline habit is left uncorrected, it will result in a bad mentality for students' psychological development (Zacks and Hen, 2018; Amir et al., 2020; Maqableh and Alia, 2021; Peixoto et al., 2021; Pelikan et al., 2021; Prasetyanto et al., 2022).

Despite realizing that it has negative effects, students still engage in academic procrastination for internal or external reasons. Still, due to the pandemic situation, some teachers consider it normal and understandable. Some factors associated with academic procrastination are weak learning dedication, low learning performance, and poor learning objectives achievement (Tian et al., 2021). Academic procrastination is spurred by certain situations, including task difficulty and low task attractiveness, being compelled to learn autonomously, and unattractive teacher characteristics (Klingsieck, 2013). Students experience difficulties in learning and managing the learning process and lack independence and maturity, thereby finding it difficult to motivate themselves, especially when faced with difficult, lengthy learning tasks (low adversity quotient) (Zacks and Hen, 2018). Other reasons include the unattractive way of delivering materials, difficulty adapting to online learning, connection instability, and extra financial burden to access the Internet (Amir et al., 2020; Maqableh and Alia, 2021; Peixoto et al., 2021; Pelikan et al., 2021; Prasetyanto et al., 2022). In

addition, there are issues of ineffectively delivered curriculum and a lack of interaction between teacher and student or between student and student (Mohalik and Sahoo, 2020). Students also have difficulty concentrating when learning, psychological problems, and poor time management (Maqableh and Alia, 2021). They are often confused about completing their tasks because the instructions are hard to understand (Peixoto et al., 2021). Besides, procrastination can also result from laziness in completing the tasks from the teacher and low learning motivation (Pelikan et al., 2021). The following issues are also present: the homework given by the teacher outweighs the assignment given during face-to-face meetings; the intensity of looking at a laptop or handphone screen causes disturbance to health; the conditions at home make it difficult to stay focused; being burdened by other works; vagueness in the teacher's explanation; and difficulty discussing with or asking questions to the teacher (Prasetyanto et al., 2022). Finally, the unattractiveness of the online learning model serves as an important factor in the high degree of procrastination during COVID-19 (Latipah et al., 2021; Prasetyanto et al., 2022).

Following the description above, it is necessary to further scrutinize the students' academic procrastination during the COVID-19 pandemic. However, research among senior high school students in Indonesia is still limited to the non-Islamic-based school (Latipah et al., 2021; Habibi et al., 2022; Irawan and Widyastuti, 2022). Studies showed that 47.2% of senior high school (SMA) students in Temanggung engaged in a medium level of academic procrastination (Latipah et al., 2021), 34.3% of vocational high school (SMK) students in Bojonegoro demonstrated a medium level of academic procrastination (Irawan and Widyastuti, 2022), and 652 or 78.6% state senior high school (SMAN) students in Mojokerto engaged in a medium level of academic procrastination (Habibi et al., 2022). Meanwhile, in Indonesia, Islamic-based senior high schools named Madrasah Aliyah also exist, numbering 9,131 or accounting for 24.6% of all schools at that level (Statistik, 2021; Kementerian Agama, 2022). Madrasah Aliyah (MA) is a public high school with an Islamic character administered by the Department of Religious Affairs (Suhardi, 2019). The curriculum load borne by MA students is higher than that of SMA and SMK students. The public senior high school (SMA) curriculum emphasizes the student's theoretical mastery by providing in-depth general subjects (Putri, 2020). Meanwhile, the vocational high school (SMK) focuses more on students' vocational skills to ensure students' readiness to work in certain work fields (e.g., engineering, cuisine, hospitality, and craft industries, among others) (Putri, 2020). In Islamic high school (MA), students should learn Islamic knowledge, characters, and general knowledge like in SMA (Alawiyah, 2014). This difference poses MA students with issues of greater complexity in online learning during COVID-19 than those faced by non-Islamic-based school students (Latipah et al., 2021). Previous studies revealed that in online learning during COVID-19,

40.4% of students of state Madrasah Aliyyahs in Bengkulu demonstrated a high level of academic procrastination, and 28.6% even did a very high level of procrastination (Buana et al., 2022). These findings contrast with the SMA and SMK cases, where the students' procrastination was within the medium category. Research on procrastination in the Madrasah Aliyah environment during COVID-19 is still minimal. Previous studies have examined the roles of self-efficacy and emotional intelligence on procrastination, but it was only focused on personal factors (Buana et al., 2022).

To enrich the literature on academic procrastination during online learning implementation, this research focused on Madrasah Aliyah. It included external (parental social support) and internal (personal) factors in reducing academic procrastination. Over the course of COVID-19, online learning took place at home. Therefore, parents' involvement during the learning implementation is critical. Moreover, parents are the most prominent and pivotal figures in the provision of resources for children, hence holding a central place in creating social and emotional contexts (Wray-Lake et al., 2022).

Parental social support and academic procrastination in online learning

During COVID-19 in 2021, Indonesia still implemented online learning across all levels, including senior high school. Throughout online learning, students require parental social support for smooth learning, both financially and psychologically, since parents have the primary responsibility for their children's education, including establishing social and emotional communication. However, many parents in Indonesia were found to be faced with psychological, social, and financial problems during COVID-19 (Kaligis et al., 2020; Alam et al., 2021; Anindyajati et al., 2021). Anxiety and stress problems in the family were also emerging (Anindyajati et al., 2021). Various hoaxes have triggered panic and fear (Kaligis et al., 2020). Problems also encompassed family's financial problems caused by the social distancing policy, including decreased income, increased unemployment rate, and difficulty finding a new job, all of which undermined parental social support for children (Alam et al., 2021). Study results revealed that parents with children attending school during the early stage of COVID-19 in Indonesia were suffering from a moderate stress level due to having to allocate time for working from home and assisting their children in studying from home at the same time. Parents were also overwhelmed by their children's assignments, especially mothers whose time was already mostly spent doing household chores and working from home (Susilowati and Azzasyofia, 2020). Thorell et al. (2021) discovered that online learning harmed parents' lives by increased stress levels due to high workloads, fear that their

children's academic performance would drop, social isolation, and domestic conflict.

Although many parents encounter a multitude of difficulties that lead to psychological, social, and financial issues, parental social support occupies a core place within a crowded situation, raising students' spirit albeit being under restrictions (Ikeda and Echazarra, 2021; Klootwijk et al., 2021; Maqableh and Alia, 2021). Research results reported a significant increase in parental social support during online learning from face-to-face learning, where parents felt a sense of responsibility for the online learning process (Wray-Lake et al., 2022). Parental social support appropriate to students' needs during online learning may take the following forms: an internet facility, a material device such as a laptop or personal computer, and a home with a conducive environment for the learning (Maqableh and Alia, 2021).

Being related to various learning problems during online learning implementation, parental social support helps overcome academic procrastination optimally. A United States-based education longitudinal study on 15,240 ten graders showed that parents' involvement in their children's education, both at home and in school, had a significant effect on the children's learning success (Benner et al., 2016). Results of another study on 313 upper secondary school students in Turkey showed that social support from the family contributed to academic procrastination (Erzen and Çikrnci, 2018). Parental social support is pivotal and considerably influential to students' social, psychological, and academic functions (Won and Yu, 2018). It was also reported that 177 United States parents of kindergarten to senior high school-aged children found it difficult to motivate their children to learn online (Garbe et al., 2020). Meanwhile, parental emotional support, such as motivational support, is grievously needed by students (Ikeda and Echazarra, 2021; Klootwijk et al., 2021). A lack of attention and learning motivation from parents for children are among the most responsible for the high level of academic procrastination behavior in online learning (Wulandari et al., 2021).

The effects of parental social support and adversity quotient on academic procrastination

Parental social support affects students' adversity quotient and, subsequently academic procrastination. Parents, who are responsible for their children's education and future, feel called to think about how their children will reach success in learning, so they try to provide their children with social and emotional support well and openly. This support raises the children's motivation and spirit to put an effort to reach success, giving them the strength to take on challenges and hold on in the face of obstacles (Hidayati and Taufik, 2020). Adversity quotient is

how well an individual persists in hardships and turns difficulties into opportunities (Stoltz, 2006). A qualitative study on students from low-income (poor) families and students falling victim to domestic violence or broken homes showed that parents had a strong association with adversity quotient development because the family is a motivator for students' improved endurance (Hidayati and Taufik, 2020). Therefore, parents play an essential role in improving students' adversity quotient. This is supported by the results of a study on 232 first-year students in Makassar, which revealed that parental social support had a role in forming the ability to cope with academic obstacles during the COVID-19 period (Sihotang and Nugraha, 2021). Parental social support may give the children opportunities to make decisions, provide a clear, consistent guide to their expectations and rules, and give the students adaptive and constructive responses to face academic obstacles (Sihotang and Nugraha, 2021).

Adversity quotient is essential for students during COVID-19. Given that during online learning, senior high school students in Indonesia face obstacles and barriers that may influence their learning quality and outcomes (Amir et al., 2020; Prasetyanto et al., 2022). With an adversity quotient, students can take situations under control, take advantage of opportunities, and have higher success chances (Juwita and Usodo, 2020). Research also unveiled that academic procrastination was influenced by the adversity quotient (Tuasikal et al., 2019). It stated that the higher the student's adversity quotient, the lower the procrastination tendency, and the lower the student's adversity quotient, the higher the procrastination tendency (Tuasikal et al., 2019).

Students need an adversity quotient to successfully deal with problems and fulfill their tasks and responsibilities in the online learning field (Safi'i et al., 2021) and tackle academic issues (Parvathy and Praseeda, 2014). Students with high adversity quotients have a better self-motivation ability. In contrast, those with low adversity quotients will tend to give up and yield easily display pessimism, and exhibit a negative attitude (Stoltz, 2006). Earlier research findings showed that the adversity quotient affected students' ability to adapt to online learning from offline learning, not excluding the ability to access and use online learning to establish a learning standard (Safi'i et al., 2021).

Present study

According to the explanation above, especially in the case of Madrasah Aliyah students, online learning has caused high levels of academic procrastination behavior. Earlier studies have explained that parental social support had a role in adversity quotient and academic procrastination, while adversity quotient had a role in academic procrastination. It can be concluded that parental social support contributes to students' adversity quotient and subsequently affects academic procrastination. Thus far, there is minimal research on the mediating role

of adversity quotient in the relationship between parental social support and academic procrastination. Therefore, the goal pursued by this research was to explain how parental social support influences academic procrastination with the mediation of adversity quotient in the case of Madrasah Aliyah students. The hypotheses model of this research is presented in Figure 1, while the hypotheses themselves are as follows:

H₁: Parental social support has a negative role in academic procrastination.

H₂: Parental social support has a positive role in the adversity quotient.

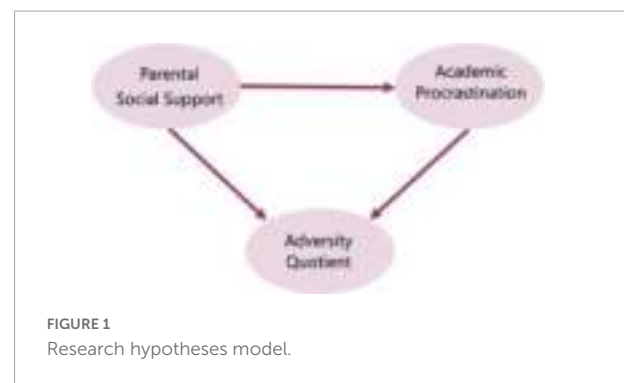
H₃: Adversity quotient has a negative role in academic procrastination.

H₄: Adversity quotient has a mediating role in the relationship between parental social support and academic procrastination.

Material and methods

Methods research participants and procedure

As many as 256 students from two Public Madrasah Aliyahs in Magelang aged 15–18 years ($M = 16.53$, $SD = 1.009$), consisting of 131 men and 125 women students, participated in this research. The participants were recruited by proportionate random sampling. This research acquired a research permit from Ahmad Dahlan University (F4/387/PS44/D.66/IV/2021) and from schools where this research was conducted. The researchers coordinated



with school counselors to access participants' phone numbers and form a WhatsApp group. Data collection was carried out using the Google Forms application. The researchers provided information on the research and instructions on completing the questionnaire via the WhatsApp group. Participants' informed consent was asked ahead of the Google Forms questionnaire completion. Each participant spent around 15 min collecting the data. This research was conducted in July 2021.

Instruments

The academic procrastination scale was formulated using a 24-item Likert scale about the procrastination signs according to Ferrari Jonson and McCown: students put off starting and finishing a task, students complete a task late, there is a gap between the plan and the actual performance, and students prefer doing a more pleasurable activity (Ferrari et al., 1995). Four answer alternatives were used: SA (strongly agree), A (agree), D (disagree), and SD (strongly disagree). A higher score indicates a higher level of students' procrastination. The academic procrastination scale was deemed valid (chi-square value of 14.58; $p = 0.01$), reliable (Cronbach's alpha = 0.803), and having a fit model (CFI = 0.983; GFI = 0.73; TLI = 0.948; RMSEA = 0.098).

The parental social support scale was composed of 28 items. It took on the form of a Likert scale that was formulated about the social support aspects according to Sarafino and Smith; emotional support (a. empathy, b. comforting support); companionship support (a. spending time together, b. having a mutually supportive companionship bond); information support (a. receiving suggestions and advice, b. acquiring information); and instrumental support (a. non-material direct aid, b. action direct aid) (Sarafino and Smith, 2014). Four answer alternatives were used, namely SA (strongly agree), A (agree), D (disagree), and SD (strongly disagree). A higher score indicates higher students' perceived parental social support. The parental social support scale was deemed valid (chi-square value of 15.978; $p = 0$), reliable (Cronbach's alpha = 0.863), and having a fit model (CFI = 0.995; GFI = 0.71; TLI = 0.985; RMSEA = 0.099).

Lastly, the adversity quotient scale was a Likert scale with 22 items. This scale referred to Stoltz's dimensions, namely control, ownership, reach, and endurance (Stoltz, 2006). Five alternative responses were provided, namely SA (strongly agree), A (agree), N (neutral), D (disagree), and SD (strongly disagree). A higher score indicates a higher student's adversity quotient. The adversity quotient scale was deemed valid (chi-square value of 6.278; $p = 0.043$) and reliable (Cronbach's alpha = 0.863), and having a fit model (CFI = 0.998; GFI = 0.989; TLI = 0.994; RMSEA = 0.092).

Data analysis

Statistical-descriptive analysis was employed to gain an overview of each research variable. Structural Equation Modeling (SEM) was applied to assess the mediating role of adversity quotient in the relationship between parental social support and academic procrastination. This technique is commonly used to see the structural relationship between the measured variable and the latent construct by performing a simultaneous analysis like linear regression and path estimates. This study also measured the relationship between each aspect of parental social support and adversity quotient and academic procrastination, and the relationship between each aspect of parental social support and academic procrastination. It was done to identify the aspect with the highest contribution to academic procrastination and adversity quotient. The normality was done as a prerequisite of SEM-based on covariance. The goodness of fit index was evaluated using the following indices: probability, DF, CMIN/DF, GFI, NFI, CFI, IFI, TLI, and RMSEA (Kline, 2015). This research used the IBM SPSS 23 for the descriptive statistical analysis and normality test, and AMOS Graphics 26 for the Structural Equation Modeling.

Results

Variable descriptive data

This research showed that academic procrastination, parental social support, and adversity quotient scores were within the 30–88, 51–103, and 47–85 ranges, respectively. Based on the mean scores and frequency distributions of the variables, most of the participants engaged in a medium level of academic procrastination (69.92%), perceived a medium level of parental social support (66.02%), and had an adversity quotient at the medium level (67.97%). The descriptive data of the variables are provided in [Table 1](#), and the frequency distributions of the variables are presented in [Table 2](#). Following the Kolmogorov-Smirnov test score and $p \geq 0.05$, the data in this study were normally distributed. The academic Procrastination showed a *Kolmogorov - Smirnov value* of 1.17 with $p = 0.129$. Parental social support showed a *Kolmogorov - Smirnov* score of 1.072 with $p = 0.2$. Adversity quotient showed a *Kolmogorov - Smirnov* of 0.957 with $p = 0.319$.

Goodness of fit

The overall model fit is presented in [Table 3](#). Based on [Table 3](#), the Goodness of Fit index showed good fit according to DF, CMIN/DF, GFI, NFI, IFI, and TLI and close fit according to RMSEA. Meanwhile, the sig. Probability demonstrated marginal

TABLE 1 Descriptive data of the variables.

Variable	N	Minimum	Maximum	Mean	SD
Academic procrastination	256	30	88	55.96	8.973
Parental social support	256	51	103	80.24	9.607
Adversity quotient	256	47	85	66.09	6.486

TABLE 2 Frequency distributions of the variables.

Category	Academic procrastination		Parental social support		Adversity quotient	
	Frequency	%	Frequency	%	Frequency	%
Low	43	16.80%	45	17.58%	41	16.02%
Moderate	179	69.92%	169	66.02%	174	67.97%
Hight	34	13.28%	42	16.41%	41	16.02%

TABLE 3 Model goodness of fit test.

No	Goodness of fit index	Cut-off value	Result	Conclusion
1	Sig. Probability	= 0.05	0.011	Marginal Fit
2	Df	> 0	51	Good Fit
3	CMIN/DF	= 2.00	1.508	Good Fit
4	GFI	= 0.90	0.954	Good Fit
5	NFI	= 0.90	0.987	Good Fit
6	CFI	= 0.90	0.996	Good Fit
7	IFI	= 0.90	0.996	Good Fit
8	TLI	= 0.90	0.994	Good Fit
9	RMSEA	= 0.08	0.045	Close Fit

fit, which was still acceptable. Therefore, the model goodness of fit assumption used in this research was accepted.

Hypotheses test

The hypotheses were tested to determine whether parental social support had a direct effect on academic procrastination or whether it had an indirect effect after mediation by adversity quotient. The analysis results are shown in Table 4 and Figure 2. The findings revealed that parental social support had a significant negative role in academic procrastination ($\beta = -0.299$; $p < 0.01$), parental social support had a significant positive role in adversity quotient ($\beta = 0.411$; $p < 0.01$), adversity quotient had a significant negative role in academic procrastination ($\beta = -0.339$; $p < 0.01$), and adversity quotient had a mediating role in the relationship between parental social support and academic procrastination ($\beta = -0.139$; $p < 0.01$). Parental social support had a greater role in academic procrastination after mediation by adversity quotient ($\beta = -0.438$; $p < 0.01$).

This research also showed that every variable aspect had a significant correlation ($p < 0.01$), as seen in Table 5. Parental social support had a significant positive role in each adversity

quotient aspect and a significant negative role in each academic procrastination aspect. In contrast, the adversity quotient negatively affected all academic procrastination aspects. Parental social support had the greatest role in the control aspect of the adversity quotient. Parental social support and adversity quotient had the greatest roles in academic procrastination: “putting off starting and completing a task” and “a gap between

TABLE 4 Hypotheses analysis results.

Path	Coefficient (β)	P-value
Direct effect		
Parental social support -> Academic procrastination	-0.299	0.000***
Parental social support -> Adversity quotient	0.411	0.000***
Adversity quotient -> Academic procrastination	-0.339	0.000***
Indirect effect		
Parental social support -> Adversity quotient -> Academic procrastination	-0.139	0.000***
Total effect		
Parental social support -> Academic procrastination	-0.438	0.000***

***P < 0.001.

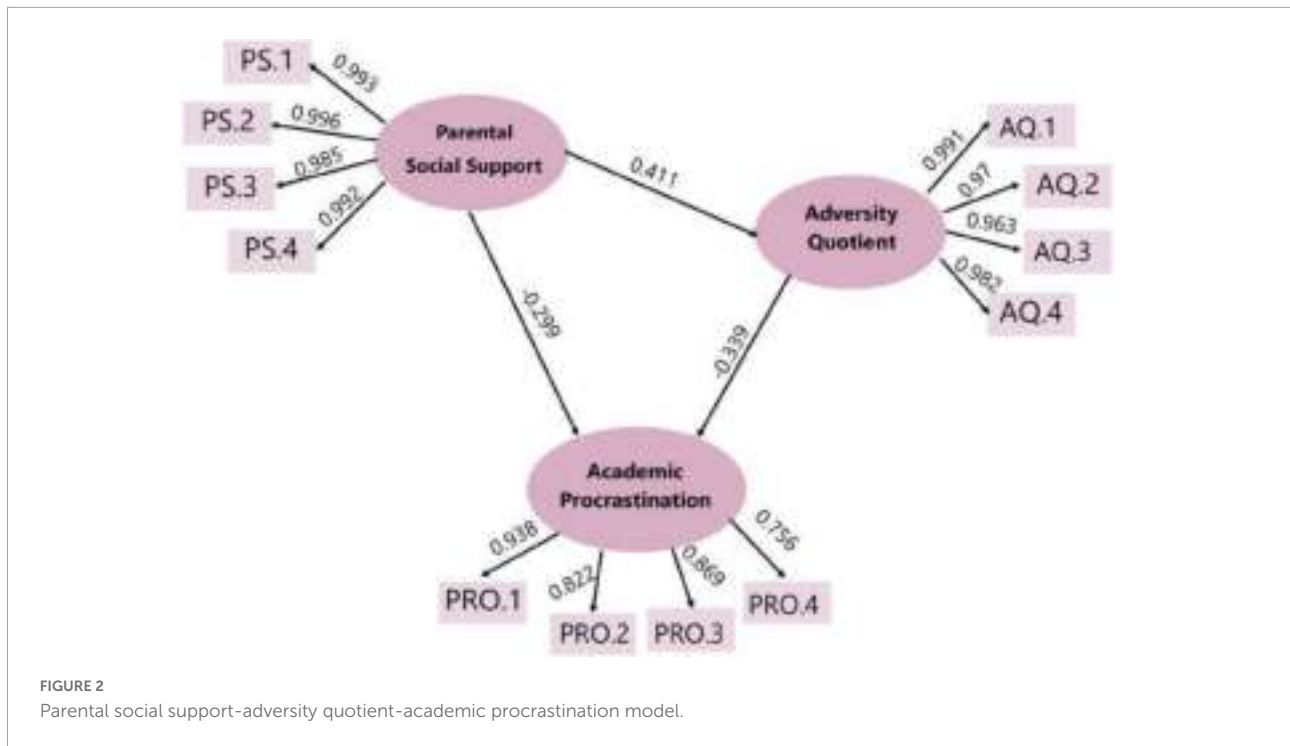


FIGURE 2 Parental social support-adversity quotient-academic procrastination model.

TABLE 5 Correlation between variable aspects.

	PR.1	PR.2	PR.3	PR.4	PS.1	PS.2	PS.3	PS.4	AQ.1	AQ.2	AQ.3	AQ.4
PR.1	1											
PR.2	0.785	1										
PR.3	0.806	0.717	1									
PR.4	0.709	0.556	0.698	1								
PS.1	-0.403	-0.414	-0.402	-0.421	1							
PS.2	-0.374	-0.368	-0.376	-0.384	0.989	1						
PS.3	-0.357	-0.351	-0.352	-0.367	0.978	0.979	1					
PS.4	-0.330	-0.332	-0.331	-0.339	0.982	0.987	0.980	1				
AQ.1	-0.425	-0.361	-0.399	-0.388	0.406	0.406	0.407	0.415	1			
AQ.2	-0.413	-0.346	-0.396	-0.382	0.391	0.389	0.390	0.399	0.97	1		
AQ.3	-0.429	-0.366	-0.408	-0.372	0.396	0.395	0.399	0.401	0.956	0.935	1	
AQ.4	-0.410	-0.348	-0.402	-0.373	0.396	0.393	0.394	0.405	0.972	0.962	0.948	1

$p < 0.01$.

Academic procrastination aspects:

PR.1: Putting off starting or completing a task; PR.2: Completing a task late; PR.3: A gap between the plan and the actual performance; and PR.4: Performing a more pleasurable activity.

Parental social support aspects:

PS.1: Emotional support; PS.2: Companionship Support; PS.3: Information Support; and PS.4: Instrumental support.

Adversity quotient aspects:

AQ.1: Self-regulation; AQ.2: Endurance; AQ.3: Reach; and AQ.4: Ownership.

the plan and the actual performance.” The regression test results on the variables’ aspects can be seen in Table 6.

Discussion

This research demonstrated that most Madrasah Aliyah participants engaged in academic procrastination during online

learning in the COVID-19 pandemic. Meanwhile, previous research found that academic procrastination among state Madrasah Aliyah students in Bengkulu fell into the high category due to minimum knowledge and skills for using learning media, difficulties participating in online learning because of Internet access issues, and, in the case of delays in assignment submission, poor understanding of the materials and concepts delivered by the teacher during online learning

TABLE 6 Results of regression test on the aspects of the variables.

	Coefficient (β)	P-value
Parental social support \rightarrow Adversity quotient aspects		
Self-regulation	0.407	0.000***
Endurance	0.402	0.000***
Reach	0.396	0.000***
Ownership	0.403	0.000***
Adversity quotient \rightarrow Academic procrastination aspects		
Putting off starting and completing a task	-0.318	0.000***
Completing a task late	-0.278	0.000***
A gap between the plan and the actual performance	-0.294	0.000***
Performing a more pleasurable activity	-0.256	0.000***
Parental social support \rightarrow Academic procrastination aspects		
Putting off starting and completing a task	-0.411	0.000***
Completing a task late	-0.360	0.000***
A gap between the plan and the actual performance	-0.381	0.000***
Performing a more pleasurable activity	-0.331	0.000***

***p < 0.001.

(Buana et al., 2022). This gap might be attributable to the demographic aspect related to Internet access. As reported by UNICEF, only 54.49% of households in Bengkulu Province had Internet access, while in Central Java Province, of which Magelang is part, the figure was 66.73% (UNICEF, 2020). The previously reported limitations in access to affordable Internet services and suitable digital devices have caused it difficult for the larger portion of students to participate in the online learning process (UNICEF, 2020).

These findings were in line with previous studies conducted on SMA and SMK students in the same province this research was conducted, which reported medium levels of academic procrastination (Latipah et al., 2021; Habibi et al., 2022). This portrays that the greater curricular burden borne by MA students than by their SMA and SMK peers in Central Java did not necessarily make the former procrastinate to a greater degree than the latter. A further investigation concerning this matter is thus needed since other factors may also influence it.

The next finding was that most of the students perceived their parents' support to be within the moderate category, suggesting that parental social support for MA students in implementing online learning was fair food. These findings align with previous research, which reported a moderate level of parental social support after an increase from when learning was conducted face-to-face (Wray-Lake et al., 2022). It was also found that most students had a moderate level of adversity quotient and that many were even found to demonstrate a high

level of adversity quotient. This depicts that students had a fairly good adversity quotient (Wray-Lake et al., 2022).

This research revealed that parental social support had a negative role in academic procrastination. This explains that the better the parental social support perceived by the students, the lower the academic procrastination. Contrarily, the lower the parental social support was in the students' perception, the higher the academic procrastination level. Pre-pandemic research supported this finding, stating that parental social support could suppress academic procrastination behavior (Erzen and Çikrikci, 2018). This means that both during and before the COVID-19 pandemic, parental social support played a role in academic procrastination. This result also confirmed that parents held a key role in students' learning process, particularly during COVID-19 (Wray-Lake et al., 2022).

Every aspect of academic procrastination, parental social support, and adversity quotient also demonstrated correlation. Parental social support contributed negatively to all academic procrastination aspects. Parental social support, particularly instrumental support, had the most significant role in the delay in starting or completing a task. Instrumental support refers to providing financial aid, material resources, or necessary services (Murray et al., 2016). The results showed that support in financial aids, devices, and services helped students suppress the rate at which they put off starting and completing a task. This is because, during the online learning process, students need parental social support for smooth learning in terms of material (money to buy Internet quotas), device (laptop or personal computer), and home condition (a conducive environment for learning) (Maqableh and Alia, 2021).

In addition, parental social support was also found to positively contribute to the adversity quotient. This explains that the better the parental social support perceived by students, the higher the adversity quotient, and vice versa. This finding is in parallel with the finding of the qualitative study by Hidayati and Taufik (2020), according to which the social support from the family served as an additional factor in the adversity quotient. It was also supported by another study on first-year students, according to which parental social support had a role in forming the ability to cope with academic obstacles during COVID-19 (Sihotang and Nugraha, 2021). Parental social support promotes students' adaptive and constructive responses to academic challenges field (Sihotang and Nugraha, 2021). Results of a literature review revealed that the support and encouragement from parents in the forms of praises for the child's performance, progress, and efforts, attention to the child's self and their school performance, and provision of a conducive environment and materials for the child's learning predicted the child's academic achievements (Boonk et al., 2018).

According to this study, parental social support had the most considerable contribution to the control aspect of the adversity quotient. This shows that senior high

school students still needed parents' aid in positively controlling their responses to coping with online learning difficulties. Senior high school students are adolescents with a higher degree of independence than in the previous phases and with a need for self-autonomy (Branje et al., 2021). However, this aspect is still in a developmental stage and thus requires support from parents who serve as the primary support system for these senior high school students (Kagiticibasi, 2013). As stated previously, this research also discovered that all parental social support aspects, namely emotional support, companionship support, information support, and instrumental support, were positively correlated with this control aspect of the adversity quotient, with the last of the four demonstrating the highest degree of correlation. This shows that the fulfilling facilities aided students in controlling their constructive responses to online learning difficulties. Previous research stated that students experienced hardships during online learning due to non-conducive home environments, bad Internet connections, and financial burden for purchasing Internet quotas (Amir et al., 2020; Prasetyanto et al., 2022).

The further finding indicated that the adversity quotient negatively contributed to academic procrastination. The higher the adversity quotient of the student, the lower the academic procrastination, and the lower the adversity quotient, the higher the academic procrastination. In other words, the adversity quotient helped students respond to difficulties in online learning positively, hence minimizing academic procrastination behavior. This finding supported earlier research on 218 state Madrasah Aliyah students in Pontianak, Indonesia, according to which adversity quotient influenced students' adaptability from offline to online learning, including in terms of the ability to access and use online learning to establish a learning standard (Safi'i et al., 2021). Students with a higher adversity quotient found it easier to deal with any problems (Parvathy and Praseeda, 2014). It was also in line with the results by Tuasikal et al. (2019), which reported that the adversity quotient had a negative relationship with academic procrastination in students before the COVID-19 pandemic. This explains that the adversity quotient suppresses academic procrastination behavior in students of senior high school or higher educational levels during or before COVID-19.

Adversity quotient was found to have the highest contribution to students' putting off the start and completion of a task. Students with good adversity have a positive perception as they regard difficulties as opportunities (Stoltz, 2006). On the other hand, negative perception in handling tasks will cause students to be inclined toward delaying task completion (Pollack and Herres, 2020). Therefore, the adversity quotient reduces the tendency to put off starting or completing a task. In addition, the reach aspect of the adversity quotient exhibited the strongest correlation with postponing the start

or completion of a task. Students with high adversity quotient had reached their problem limits in the event they faced (Stoltz, 2006). They make improvements across various aspects to prevent the problem from affecting other aspects (Juwita and Usodo, 2020). This explains that students who focus on overcoming learning difficulties to minimize academic procrastination tend not to cause any other problems. As discovered in previous works, academic procrastination that is left unresolved may lead to other problems, such as low final grades (Kljajic and Gaudreau, 2018) low learning dedication, low learning performance, and outcomes (Tian et al., 2021), and decreased life satisfaction and increased psychological stress (Peixoto et al., 2021).

This research also demonstrated that the adversity quotient mediates the relationship between parental social support and academic procrastination. This means that students' ability to cope with difficulties could be enhanced by parental social support when they have a high adversity quotient, hence showing a low tendency for academic procrastination. Based on these findings, in conjunction with the existing literature, it is fair to say that parental social support drives the decline in academic procrastination (Erzen and Çikrikci, 2018) and, at the same time, contribute to the rise in the adversity quotient (Hidayati and Taufik, 2020; Sihotang and Nugraha, 2021). Furthermore, the adversity quotient has a role in students' tendency to engage in academic procrastination (Parvathy and Praseeda, 2014; Safi'i et al., 2021).

The results presented above have several important implications. They contribute to the literature on COVID-19 impacts on students' academic aspects and supporting factors. It was revealed that parental social support affected academic procrastination and adversity quotient. Therefore, it is deemed necessary to pay special attention to the COVID-19 impact on parents, allowing them to provide support for their children optimally. In addition, there were also results showing that the adversity quotient contributed to the relationship between parental social support and academic procrastination. These findings have a key contribution to the academic procrastination literature, given that studies that use adversity quotient as a mediator have thus far been minimal.

This research came with several limitations. Uneven distribution of education facilities throughout Indonesia might have influenced the research results. This study was convened only to subjects in Magelang, and Madrasah Aliyah students in that. Future studies may be conducted at international schools and with the involvement of subjects in a wider area in Indonesia. Other internal and external factors may be examined in greater depth in future works since this study was restricted only to parental social support and adversity quotient. Moreover, descriptive data of parents' situations (e.g., occupation, educational status, and income) had yet to be revealed in this research. Hopefully, future research may explain these data.

Conclusion

This study found that parental social support negatively contributed to academic procrastination and adversity. Meanwhile, the adversity quotient negatively contributed to academic procrastination and mediated the relationship between parental social support and academic procrastination. This research also discovered that each aspect of the variables demonstrated a significant correlation. Finally, both parental social support and adversity quotient could negatively predict every aspect of academic procrastination.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Lembaga Penelitian dan Pengabdian Kepada Masyarakat Universitas Ahmad Dahlan. Written informed consent from the participants or their legal guardian/next of kin was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

AM: conceptualization and writing—initial draft preparation. AM, NR, and FO: data curation. MM, ZM, NR, and FO: formal analysis. AM, MM, and ZM: investigation and validation. AM, MM, ZM, and NR: methodology. NR and FO:

visualization. AM, MM, ZM, NR, and FO: writing—review and editing. All authors have read and agreed to the published version of the manuscript.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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