

**UNIVERSITAS AHMAD DAHLAN**  
**FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN**

Kampus 1 : Jalan Kapas 9, Semaki Yogyakarta, 55166  
Kampus 2 : Jalan Pramuka 42, Sidikan Yogyakarta, 55161  
Kampus 3 : Jalan Prof. Dr. Soepomo, S.H., Warungboto Yogyakarta, 55164  
Kampus 4 : Jalan Ahmad Yani (Ringroad Selatan), Tamanan Banguntapan Bantul Yogyakarta  
Kampus 5 : Ki Ageng Pemanahan 19, Sorosutan Yogyakarta  
Telepon : (0274) 563515, 511830, 379418, 371120, Fax. (0274) 564604

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1.	Dra. Alif Muarifah, S.Psi., M.Si., Ph.D.	60880057	Bimbingan dan Konseling-S1

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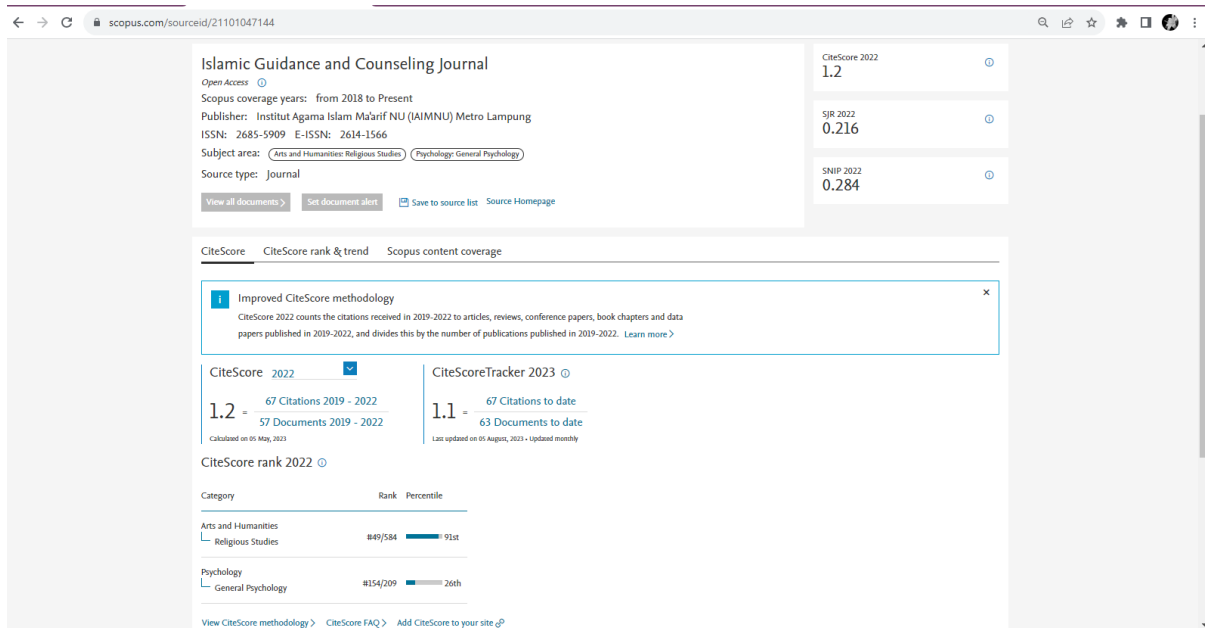
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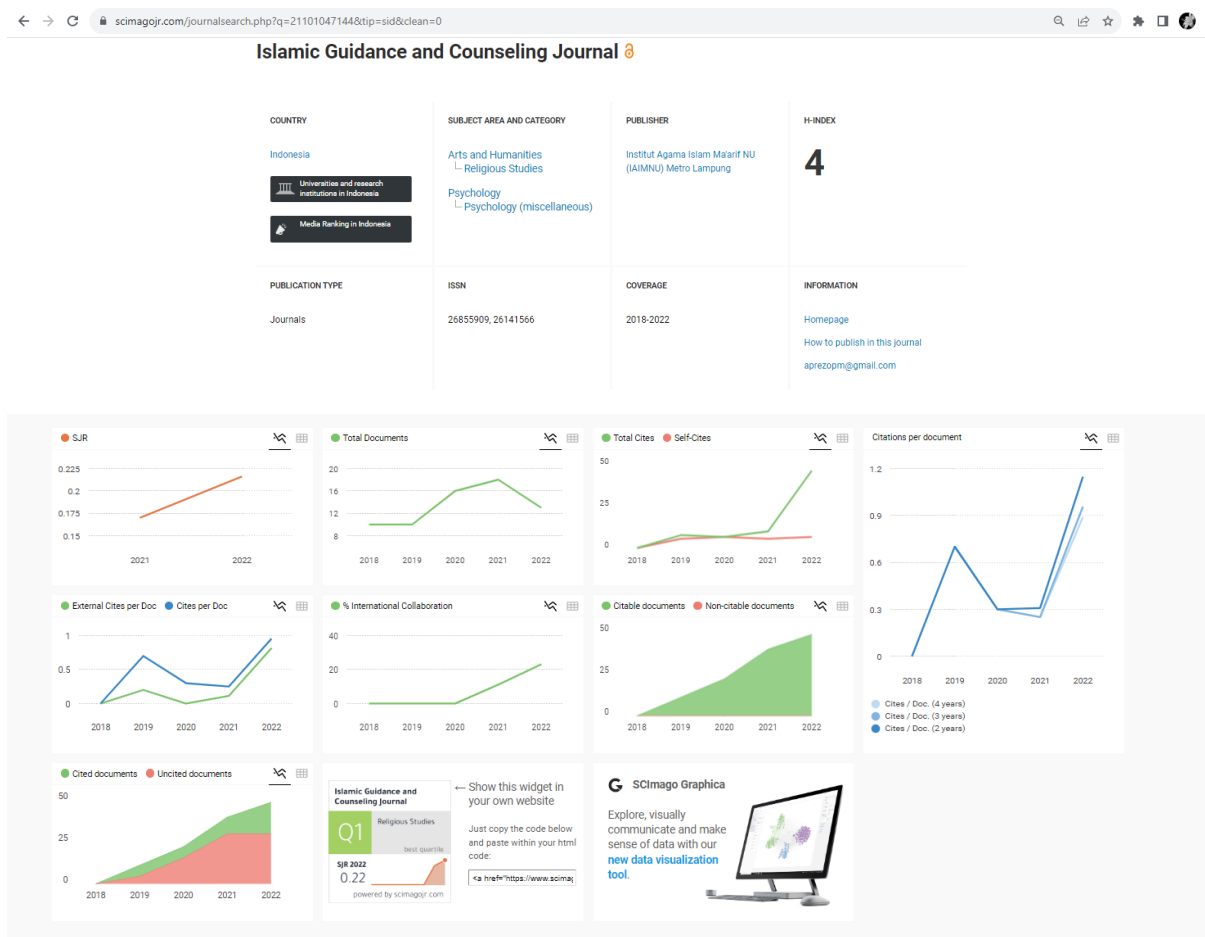
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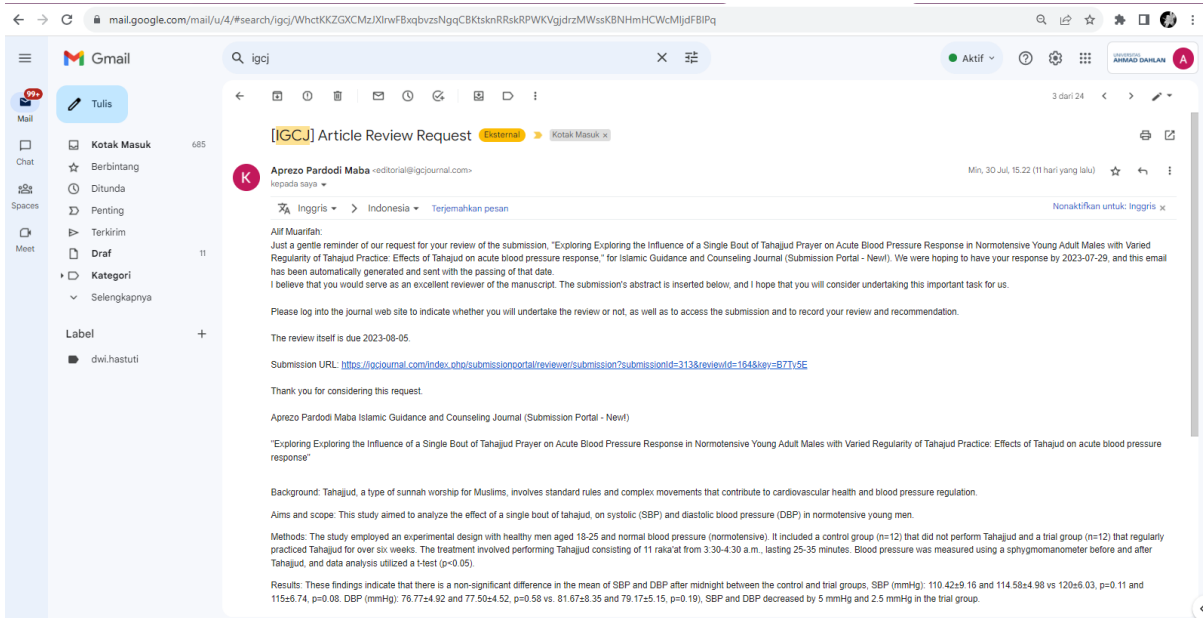
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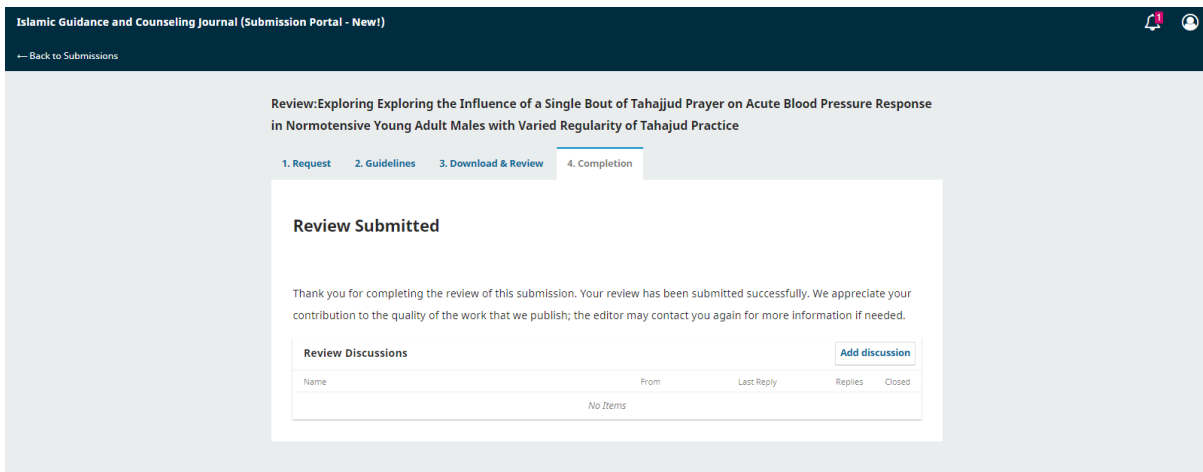
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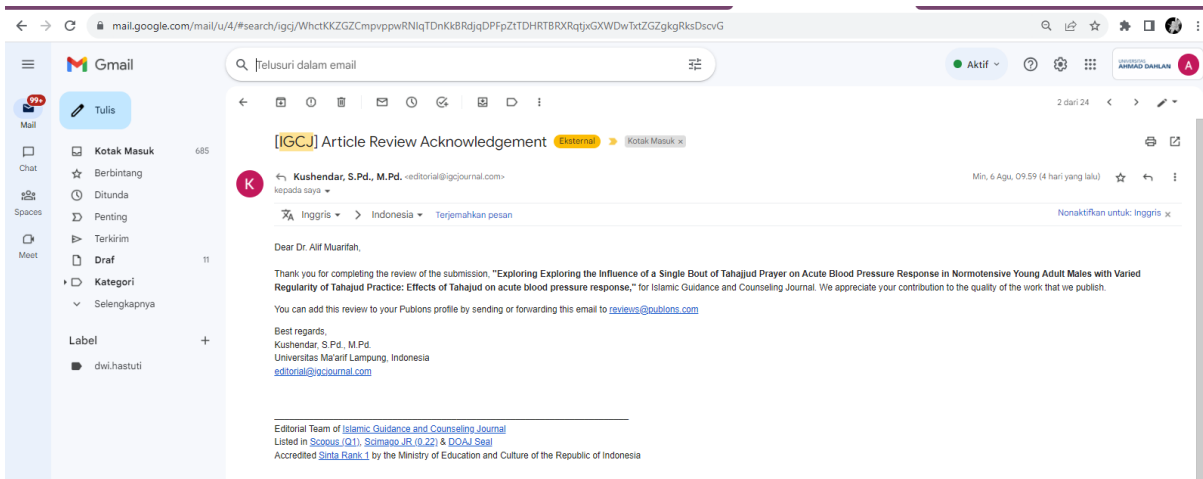
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### ARTICLE TITLE:

**Exploring the Influence of a Single Bout of Tahajjud Prayer on Acute Blood Pressure Response in Normotensive Young Adult Males with Varied Regularity of Tahajjud Practice**

### PLEASE WRITE YOUR REVIEW HERE:

NO	SECTION/SUB-SECTION	COMMENTS
1	TITLE	-
2	ABSTRACT	-
3	KEYWORDS	-
4	INTRODUCTION	<ol style="list-style-type: none"><li>1. Please add a connecting sentence between paragraphs on sentence lines 55 to 57.</li><li>2. Please add the number of people with blood pressure among young adults in Indonesia.</li><li>3. Please add literature to support the assumption that 11 rak'ah Tahajjud was chosen, if not, what is the reason for this assumption based on which research?</li><li>4. All study subjects were male, please explain the reason. Does gender affect the findings? If yes, please explain and can be used as input for further research</li></ol>
<i>a</i>	<i>Background</i>	-

<i>b</i>	<i>Literature review</i>	-
<i>c</i>	<i>The rationale of the study</i>	-
<i>d</i>	<i>Hypotheses/aims/objectives</i>	-
5	METHODS	-
<i>a</i>	<i>Approach/Design</i>	-
<i>b</i>	<i>Participants</i>	-
<i>c</i>	<i>Instruments</i>	-
<i>d</i>	<i>Procedures</i>	-
<i>e</i>	<i>Data analysis</i>	-
6	RESULTS AND DISCUSSION	<ol style="list-style-type: none"> <li>1. Placement of each final citation is after a period, please correct it.</li> <li>2. Check the space after the comma and other punctuation marks, please correct them according to the correct writing procedure.</li> </ol>
<i>a</i>	<i>Results</i>	-
<i>b</i>	<i>Discussion</i>	The findings showed insignificant results, but the discussion has not explained the reasons for insignificance. Please

		provide an explanation of the reasons for insignificance that are supported by theory or previous research.
<i>c</i>	<i>Implications</i>	-
<i>d</i>	<i>Limitation and suggestions</i>	-
10	CONCLUSIONS	-
11	REFERENCES	Placement of each final citation is after a period, please correct it.
12	OVERALL PRESENTATION	-
13	OVERALL WRITING	Check the space after the comma and other punctuation marks, please correct them according to the correct writing procedure.

**Original Article**

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**Exploring the Influence of a Single Bout of Tahajjud Prayer on Acute Blood Pressure Response in Normotensive Young Adult Males with Varied Regularity of Tahajud Practice**

10 **ABSTRACT**

11 Background: Tahajjud, a type of sunnah worship for Muslims, involves standard rules and complex  
12 movements that contribute to cardiovascular health and blood pressure regulation.

13 Aims and scope: This study aimed to analyze the effect of a single bout of tahajud, on systolic (SBP)  
14 and diastolic blood pressure (DBP) in normotensive young men.

15 Methods: The study employed an experimental design with healthy men aged 18-25 and normal blood  
16 pressure (normotensive). It included a control group (n=12) that did not perform Tahajjud and a trial  
17 group (n=12) that regularly practiced Tahajjud for over six weeks. The treatment involved performing  
18 Tahajjud consisting of 11 raka'at from 3:30-4:30 a.m., lasting 25-35 minutes. Blood pressure was  
19 measured using a sphygmomanometer before and after Tahajjud, and data analysis utilized a t-test  
20 ( $p < 0.05$ ).

21 Results: These findings indicate that there is a non-significant difference in the mean of SBP and  
22 DBP after midnight between the control and trial groups, SBP (mmHg):  $110.42 \pm 9.16$  and  
23  $114.58 \pm 4.98$  vs  $120 \pm 6.03$ ,  $p = 0.11$  and  $115 \pm 6.74$ ,  $p = 0.08$ . DBP (mmHg):  $76.77 \pm 4.92$  and  $77.50 \pm 4.52$ ,  
24  $p = 0.58$  vs.  $81.67 \pm 8.35$  and  $79.17 \pm 5.15$ ,  $p = 0.19$ ), SBP and DBP decreased by 5 mmHg and 2.5 mmHg  
25 in the trial group.

26 Conclusion: Tahajjud, regardless of regularity, can elicit a modest but non-significant reduction in  
27 both SBP and DBP. These results indicate that Tahajjud may have a potential role in promoting  
28 cardiovascular health. Further research is warranted to examine the long-term effects and underlying  
29 mechanisms of Tahajjud on BP regulation.

30

31 **Keywords:** tahajud, physical activity, acute respons, blood pressure, cardiovascular

32



## 33 INTRODUCTION

34 Tahajjud, also known as the Night Vigil Prayer (salat) or the Late Night Prayer, is a voluntary  
35 prayer performed by Muslims during the late night after sleeping.(Matin, 2018) It is an additional act  
36 of worship beyond the obligatory daily prayers.(Matin, 2018) The term "Tahajjud" is derived from  
37 the Arabic word tahajjada" which means "to wake up" or "to stay awake".(Chodijah, 2017; Nurhadi,  
38 2021) Tahajjud prayer holds significant spiritual importance in Islam as it is considered a means of  
39 seeking closeness to Allah, seeking forgiveness, and supplicating for one's needs.(Chodijah, 2017)  
40 It's usually performed in the last third of the night, before the obligatory Fajr (dawn) prayer.(Pinilih  
41 et al., 2019; Utami & Usiono, 2020) Muslims wake up from their sleep to engage in worship and  
42 devote themselves to prayer and reflection during this peaceful and serene time of the night. Tahajjud  
43 prayer consists of many units of prayer (raka'at), typically performed in sets of two raka'at.(Nurhadi,  
44 2021) It is a voluntary act of worship, and the number of rak'ahs can vary, though an odd number,  
45 such as 2, 4, 6, or 8 raka'ats, is often performed and usually ends with 1 or 3 raka'at of Witr  
46 prayer.(Nurhadi, 2021)

47 Tahajjud prayer is highly encouraged in Islam, but it is not required. It is regarded as a period  
48 of closeness with Allah, providing an opportunity for self-reflection, spiritual growth, and the request  
49 for blessings and forgiveness.(Utami & Usiono, 2020) Therefore, not all Muslims perform the  
50 midnight prayer regularly. Many Muslims think that Tahajjud prayer gives spiritual gifts and  
51 blessings, as well as aids in the development of a greater relationship with their Creator.(Utami &  
52 Usiono, 2020) Besides its high spiritual value and devotion, Tahajjud Prayer is also associated with  
53 several health benefits.(Utami & Usiono, 2020) Although these benefits have not been extensively  
54 studied scientifically, some aspects have been noted by practitioners and scholars. Tahajjud Prayer  
55 involves bodily movements that require strength and muscle flexibility.(Utami & Usiono, 2020) By  
56 regularly performing this prayer, individuals may gain physical benefits such as muscle stretching,  
57 increased muscle strength, balanced, improved blood circulation, and cardiovascular system.

58 Cardiovascular responses, including blood pressure, are influenced by a variety of factors,  
59 such as: lifestyle, stress, and physical activity,(Rufa'i et al., 2013) Regular physical activity is an  
60 excellent method for the prevention and alternative treatment of non-communicable diseases,  
61 including hypertension, as evidenced by numerous research studies.(Gualdi-russo & Zaccagni, 2021)  
62 Physical activity is associated with blood pressure,(Fagard, 2001) and physical activity has been  
63 shown to lower blood pressure, but the acute and chronic effects of physical activity on blood pressure  
64 may differ.(Carpio-Rivera et al., 2016) The intensity and duration of physical activity also influence  
65 the response to blood pressure caused by physical activity.(Araújo et al., 2014) The World Health  
66 Organization (WHO) has recommended exercise as the primary and adjuvant non-pharmacological  
67 therapies for hypertension.(Wallace, 2003) Physical activity is a non-pharmacological first-line

68 therapy for hypertension prevention.(Cornelissen & Smart, 2013) According to data, more than 40%  
69 of young adults have high blood pressure and require medical treatment to maintain their  
70 health.(Williamson et al., 2022) If this condition is not properly treated, it will affect the development  
71 of hypertension, therefore lifestyle changes and regular physical activity are required.(Williamson et  
72 al., 2022)

73 Salat performed with the correct movements according to Islamic teachings can be considered  
74 a physical activity in terms of health.(Alabdulwahab et al., 2013) Salat is a physical practice with  
75 several health benefits because the change of posture and movement in each prayer are highly  
76 complicated.(Alabdulwahab et al., 2013) Salat in Islam requires carefully regulated movements and  
77 postures.(Hossain, 2020) Each prayer cycle consists of 7-9 postures that are repeated.(Jimoh, 2022)  
78 Tahajjud is a type of salat practiced by Muslims in which the physical activity performed during salat  
79 is referred to as meditation.(Doufesh et al., 2013) Meditation is beneficial for controlling blood  
80 pressure and functions as a medication for people with hypertension.(Doufesh et al., 2013) Salat is a  
81 moderate-intensity aerobic physical activity that is also equated with yoga and Tai chi.(Doufesh et  
82 al., 2013) Yoga has been shown to lower systolic blood pressure (SBP) and diastolic blood pressure  
83 (DBP) by decreasing sympathetic activity.(Doufesh et al., 2013) As a result, Tahajjud is thought to  
84 play a role in blood pressure regulation. Moderate-intensity exercise for 30 minutes or more is a non-  
85 pharmacological therapy that is recommended to normalize blood pressure in people with high blood  
86 pressure.(Gjøvaag et al., 2020)

87 High blood pressure, also known as hypertension, is a medical condition characterized by  
88 consistently elevated levels of pressure in the arteries which is consistently higher than 130/80 mm  
89 Hg.(Desai, 2020) Blood pressure is measured using two numbers: systolic pressure and diastolic  
90 pressure. The systolic pressure represents the force exerted on artery walls when the heart contracts  
91 and pumps blood, while the diastolic pressure represents the pressure in the arteries when the heart is  
92 at rest between beats. High blood pressure occurs when the force of blood against the artery walls is  
93 consistently too high. Hypertension is diagnosed when blood pressure consistently exceeds the  
94 normal range, typically reaching or exceeding 130/80 mmHg.(Cardona-müller & Cardona-muñoz,  
95 2022) It is often referred to as the "silent killer" because it typically does not cause noticeable  
96 symptoms, but it can lead to serious health complications if left untreated. Uncontrol and chronic high  
97 blood pressure can strain the heart, damage blood vessels, and increase the risk of heart disease,  
98 stroke, kidney disease, and other health problems.(Cardona-müller & Cardona-muñoz, 2022; Kwon  
99 et al., 2020) Managing high blood pressure usually involves a combination of lifestyle changes and  
100 pharmacology therapy (medication).(Campbell et al., 2022; Kwon et al., 2020) Lifestyle  
101 modifications may include adopting a healthy diet low in sodium (salt), engaging in regular physical

102 activity, maintaining a normal weight, limiting alcohol consumption, quitting smoking, and managing  
103 stress levels.(Kwon et al., 2020)

104         According to an opposing viewpoint, moderate-intensity physical activity has been associated  
105 with an increase in systolic blood pressure (SBP) but does not have a significant impact on diastolic  
106 blood pressure (DBP), thus not causing post-exercise hypotension (PEH).(Edilma et al., 2017)  
107 However, we hypothesize that performing Tahajud prayer, consisting of 11 cycles (raka'at) with a  
108 duration of 20-35 minutes, may be equivalent to engaging in moderate-intensity physical activity. As  
109 a result, Tahajud prayer may potentially lower both SBP and DBP, contributing to blood pressure  
110 regulation. Moreover, Tahajud prayer can serve as an effective preventive measure against  
111 hypertension, particularly at a young age. It is worth noting that Tahajud prayer is a simple physical  
112 activity that does not require any specific location or specialized equipment, making it accessible to  
113 individuals of all backgrounds and circumstances. Research focusing on the effects of performing  
114 Tahajud prayer, consisting of 11 raka'at, on blood pressure is crucial for gaining a comprehensive  
115 understanding of the potential physiological impacts associated with this specific form of worship.  
116 This type of study would provide valuable insights into the physiological responses that occur during  
117 and after the prayer, helping to bridge the current gap in scientific knowledge.

118         At present, there is a lack of scientific evidence specifically investigating the acute effects of  
119 performing 11 raka'at of Tahajud prayer on blood pressure. By conducting research in this area, we  
120 can fill this gap and shed light on the potential physiological changes that occur during this spiritual  
121 practice. Tahajud prayer holds significant religious and spiritual importance for Muslims, and it is  
122 believed to have positive impacts on overall well-being. Understanding the potential effects of  
123 Tahajud prayer on blood pressure can provide valuable insights into its broader health benefits and  
124 implications for cardiovascular health. Moreover, it is important to recognize that individuals may  
125 exhibit variations in their physiological responses to Tahajud prayer, including blood pressure  
126 changes. Some individuals may experience notable alterations in blood pressure, while others may  
127 not. Exploring these individual differences can contribute to personalized approaches in managing  
128 blood pressure and optimizing the health benefits of Tahajud prayer. By conducting research on the  
129 effects of Tahajud prayer on blood pressure, we can deepen our understanding of the physiological  
130 mechanisms at play and unveil the potential contributions of this spiritual practice to overall health  
131 and well-being. This research has the potential to provide valuable information for both medical  
132 professionals and individuals seeking to optimize their physical and spiritual health.

133         Investigating the acute effects on blood pressure after performing 11 raka'at of Tahajud  
134 prayer can help identify any patterns or individual variations that may exist, providing insights into  
135 factors that could influence blood pressure response. Potential therapeutic applications: if research  
136 demonstrates consistent and significant effects of Tahajud prayer on blood pressure, it could have

137 implications for the development of non-pharmacological interventions for high blood pressure  
138 management. Understanding the physiological mechanisms behind any observed effects could open  
139 up possibilities for using Tahajjud prayer as a complementary approach to blood pressure control.  
140 Health promotion among Muslims: Research findings related to the health benefits of Tahajjud prayer  
141 and its potential impact on blood pressure can serve as educational tools to promote healthier practices  
142 within Muslim communities. It can encourage individuals to engage in this form of worship with a  
143 better understanding of its potential positive effects on their overall well-being. By researching the  
144 effects of performing 11 rak'ahs of Tahajjud prayer on blood pressure, we can expand our knowledge  
145 and contribute to the scientific understanding of the potential physiological impacts of this important  
146 religious practice.

147

## 148 **METHODS**

149

### 150 **Study Design and Treatment**

151 This was an experimental study with sedentary healthy male subjects. Blood pressure checks  
152 were carried out before and after the treatment. The treatment was a Tahajud prayer of 11 rakaat,  
153 which consisted of 8 rakaat of Tahajud and three rakaat of Witr. The treatment was given once due  
154 to this study aimed to analyze the acute response of blood pressure after physical activity (Tahajud  
155 Prayer). The tahajud was carried out at mid-night at 03.30–04.30 p.m. Blood pressure was checked  
156 10 minutes before tahajud, then tahajud for 11 cycles (rakaat) without a rest period, and blood pressure  
157 was checked ten minutes after tahajud as post-exercise blood pressure. Subjects were instructed to  
158 sleep no later than 10 p.m., refrain from drinking coffee and alcohol, not take antihypertensive  
159 medication or other drugs that affect blood pressure, and not currently being treated for disease.

160 This study was carried out at Universitas Syiah Kuala in Banda Aceh, Aceh Province,  
161 Indonesia. Anthropometric measurements (weight, height, and BMI) were taken in the Physiology  
162 Laboratory, Faculty of Medicine, Universitas Syiah Kuala. Blood pressure examination and treatment  
163 were performed at the Universitas Syiah Kuala Mosque in Banda Aceh, while research subjects were  
164 chosen in the Universitas Syiah Kuala student dormitory in Banda Aceh. All subjects were  
165 Universitas Syiah Kuala students, and none were Faculty of Medicine students. The research  
166 implementation time was in June 2022.

167

### 168 **Research Subjects**

169 The research subjects were male, had never performed Tahajud or performed Tahajud  
170 irregularly (less than 2 times per week), and performed Tahajud regularly. Sample selection was  
171 undertaken by purposive sampling; therefore, sample selection was performed based on the inclusion

172 and exclusion criteria of the study. The inclusion criteria were adult male, aged between 18-25 years,  
173 healthy, had no musculoskeletal injury, and willing to be a subject by signing a written proof of  
174 consent. Exclusion criteria were not fully following the research procedures, currently undergoing  
175 hormonal therapy, athletes, and hypertension or high blood pressure.

176 Research subjects were divisible into two groups: control and trial groups. The control group  
177 includes those who do not perform Tahajud, while the trial group includes those who carry out  
178 Tahajud regularly (at least three times a week) for a minimum of six weeks, with the number of rakaat  
179 between 2 and 11 rakaat every session, 3-7 times a week with a duration of 25-35 minutes. One rakaat  
180 is one session (cycle) of prayer with several movements without rest and takes an average of 2-4  
181 minutes. Subjects were elected by administering a questionnaire to 70 men. Then a total of 24 men  
182 were selected, consisting of 12 men as the control group and 12 men as the trial group. The sample  
183 calculation formula for experimental research with an alpha of 0.05 and a power of 0.95 is conducted  
184 to calculate the total number of subjects. The calculation results revealed that the minimum number  
185 of samples for each control and trial group was ten. However, in order to avoid subject dropout, the  
186 number of subjects was increased by up to 20% of the total minimum sample.

187

#### 188 **Anthropometry and Blood Pressure Measurement**

189 The equipment needed was a height meter (stadiometer), a weight meter (manual weight scale  
190 or a stepping scale), a manual sphygmomanometer (Riester), and a stethoscope (Littmann). Both the  
191 anthropometry and blood pressure examinations were not carried out by the research team but were  
192 performed by doctors from the Faculty of Medicine, Universitas Syiah Kuala. Anthropometric  
193 measurements include weight, height, and body mass index (BMI). Anthropometry was checked in  
194 the morning before Tahajud, while blood pressure was measured ten minutes before and after  
195 Tahajud. Anthropometry was performed between 07.00 and 08.00 a.m. (western Indonesian time).  
196 All subjects were instructed not to have breakfast before the anthropometric measurements.

197

#### 198 **Ethical Approval**

199 The Ethics Committee for Medical and Health Research, Faculty of Medicine, Universitas  
200 Syiah Kuala, with the ethical approval number 099/EA/FK-RSUDZA/2022, approved the conduct of  
201 this study. All research subjects provided written informed consent. They were asked if they would  
202 be willing to participate in this study. The explanation includes research purposes, objectives,  
203 benefits, and risks obtained as a subject. All subjects have the right to withdraw at any time and  
204 without penalty. All results of the subject's examination are guaranteed to be confidential, and  
205 publication of the research results is done without including the subject's name. All subjects who  
206 participated in this study were voluntary.

207 **Data analysis**

208 The independent sample t-test ( $p < 0.05$ ) and paired sample t-test ( $p < 0.05$ ) were used to analyze  
209 the data in this study. An independent sample t-test was conducted to determine the effect of giving  
210 Tahajud prayer on blood pressure in each control and trial group by looking at the difference in the  
211 average blood pressure before and after treatment. The difference in data between the control and  
212 trial groups was determined using a paired sample t-test. In the event that there was a difference  
213 between the two groups in the pretest and posttest data, it was indicated that the Tahajud prayer affects  
214 blood pressure. The data was analyzed using computer software.

215

216 **RESULTS AND DISCUSSION**

217 **Results**

218 **Characteristics of research subjects**

219 As shown in Table 1, the subject's characteristics included age, weight (BW), height, and  
220 BMI. The results of the independent sample t-test analysis ( $p < 0.05$ ) show that there was no difference  
221 ( $p > 0.05$ ) in terms of age ( $p = 1.00$ ), BW ( $p = 0.98$ ), height ( $p = 0.75$ ), and BMI between groups control  
222 and trial ( $p = 0.94$ ). These findings show that there is no difference in the characteristics of each  
223 research subject between the control and trial groups; thus, the two groups can be compared because  
224 they have similar characteristics or homogeneous.

225

226 **Table 1. Characteristics of participants**

Characteristics	Group	Average±SD	p-value
Age (year)	Control	21.83±2.37	228
	Trial	21.83±2.37	1.00 229
Weight (kg)	Control	65.08±13.46	230
	Trial	65.00±12.67	0.98 231
Height (cm)	Control	165.58±4.36	232
	Trial	165.00±4.55	0.75 233
BMI (kg/m <sup>2</sup> )	Control	23.82±5.25	234
	Trial	23.98±5.18	0.94 235

236

237 Table 2 shows the results of the paired sample t-test analysis, which show that in the control  
238 group, SBP increased slightly (by about 4.16 mmHg) after performing the Tahajud prayer, but this  
239 increase was not statistically significant ( $p = 0.10$ ). The trial group's SBP decreased slightly (about 5  
240 mmHg) but not significantly ( $p = 0.08$ ) after the Tahajud. These findings suggest that performing a

241 single time of the 11-rakaat Tahajud for 25-35 minutes has no direct effect on lowering or rising SBP,  
 242 but more research is needed.

243 Table 2 also shows how tahajud prayer affects DBP. The results show that DBP decreased  
 244 in both the control group (DBP decreased by 1.17 mmHg;  $p=0.58$ ) and the trial group (DBP decreased  
 245 by 2.5 mmHg;  $p=0.19$ ) but only marginally ( $p>0.05$ ). Even though the decrease in the trial group was  
 246 more than in the control group, these findings indicate that Tahajud prayer does not affect DBP in  
 247 sedentary young men; however, further research is needed to determine the chronic response of  
 248 Tahajud prayer to blood pressure.

249

250 **Table 2. Differences in blood pressure before and after treatment in the two groups**

Blood Pressure	Group	Treatment	Average±SD	<sup>251</sup> p-value
Systolic (mmHg)	Control	Before	110.42±9.16	0.10
		After	114.58±4.98	
	Trial	Before	120.00±6.03	0.08
		After	115.00±6.74	
Diastolic (mmHg)	Control	Before	78.67±4.92	0.58
		After	77.50±4.52	
	Trial	Before	81.67±8.35	0.19
		After	79.17±5.15	

252

253 Table 3 shows the results of the independent sample t-test analysis of the SBP and DBP  
 254 variables to determine the difference in blood pressure before and after giving the Tahajud prayer  
 255 between the control and trial groups. The results show that there was a significant difference in SBP  
 256 before treatment between the control and trial groups ( $p=0.006^*$ ). These findings revealed that SBP  
 257 before treatment was higher in the trial group compared to the control group (9.58 mmHg difference),  
 258 but SBP in both groups remained within normal limits (normal SBP = 90-120 mmHg). On the other  
 259 hand, there was no significant difference in SBP after giving Tahajud prayer between the control and  
 260 trial groups ( $p=0.865$ ).

261 Table 3 also shows that there was no significant difference in DBP both before and after the  
 262 Tahajud prayer between the control and trial groups ( $p>0.05$ ). Although DBP before and after  
 263 Tahajud prayer in the control group was slightly lower than in the trial group, the difference between  
 264 these numbers did not show a statistically or clinically significant difference. The results of this study  
 265 indicate that the single bout of tahajud, whether carried out by the group who had never had tahajud  
 266 or the group who had already tahajud regularly, did not have a significant effect on blood pressure.

267 The acute response to tahajud is to regulate blood pressure under normal conditions in sedentary  
 268 normotensive young men.

269

270 **Table 3. The effect of Tahajud on SBP and DBP in the control and trial groups**

Blood Pressure	Data	Group	Average±SD	p-value
Systolic (mmHg)	Pretest	Control	110.42±9.16	0.001*
		Trial	120.00±6.03	
	Posttest	Control	114.58±115.00	0.865
		Trial	115.00±6.74	
Diastolic (mmHg)	Pretest	Control	76.67±4.92	0.088
		Trial	81.67±8.35	
	Posttest	Control	77.50±4.52	0.409
		Trial	79.17±5.15	

272 \*The level of significance (p<0,05)

273

274 Table 4 shows the results of a descriptive analysis of the magnitude of changes in blood  
 275 pressure after Tahajud intervention. This investigation was carried out to determine how the  
 276 description of changes in blood pressure after treatment was carried out. The majority of the subjects  
 277 in the control group, or approximately 66.67%, experienced an increase in SBP, while the remaining  
 278 25% experienced a decrease in SBP. The trial group obtained the opposite result. The SBP of the  
 279 majority of the 12 subjects, or up to 50%, decreased, while the rest did not. These findings imply that  
 280 regular Tahajud prayers are more likely to respond to a drop in SBP, but more research is needed.  
 281 Likewise, the results of the DBP analysis showed that most or about 75% of the subjects did not show  
 282 any change in DBP in both group. The remaining 25% of subjects and 8.33% of subjects showed a  
 283 decrease in DBP in the trial and control groups.

284

285 **Table 4. Changes in BP after Tahajud in the control and trial groups**

Blood Pressure	Group	After treatment			Total Σ (%)
		Unchanged Σ (%)	Increase Σ (%)	Decrease Σ (%)	
Systolic (mmHg)	Control	1 (8.33)	8 (66.67)	3 (25)	12 (100) <sup>286</sup>
	Trial	6 (50)	0 (0)	6 (50)	12 (100) <sup>287</sup>
Diastolic (mmHg)	Control	9 (75)	2 (16.67)	1 (8.33)	12 (100) <sup>288</sup>
	Trial	9 (75)	0 (0)	3 (25)	12 (100) <sup>289</sup>

293



## 294 **Discussion**

295 The outcomes of this study revealed that Tahajjud prayers done by persons who consistently  
296 engage in this practice demonstrated a reaction by lowering both systolic and diastolic blood pressure,  
297 albeit the results were not statistically significant. These findings suggest that Tahajjud prayer not  
298 only has religious benefits and increases mental health by lowering stress, anxiety, and  
299 depression,(Azam & Abidin, 2015; Matin, 2018; Rosyada et al., 2022; Utami & Usiono, 2020) but  
300 also adds to physical well-being. Salat, also known as Islamic prayer, is a spiritual and physical  
301 activity that can activate practically all muscles due to movement and posture changes during prayer  
302 without creating muscular tiredness, allowing it to be done repeatedly with a great number of  
303 raka'at.(Parveen & Kataria, 2020) During the performance of salat, nearly all joints and muscles are  
304 engaged due to the movements and positional changes involved, such as standing, bowing,  
305 prostrating, sitting, and finishing salat. As a result, salat can be regarded as a form of new physical  
306 activity.(Nazish & Kalra, 2018; Osama et al., 2019) Salat maneuvers are included in moderate  
307 intensity physical activity.(Doufesh et al., 2014)

308 Physical activity that is carried out regularly can be regarded as an exercise that is useful for  
309 improving or maintaining physical health and fitness.(Osama et al., 2019) WHO defines exercise as  
310 a physical activity that is carried out in a planned, structured, repetitive manner, with the aim of  
311 improving physical health and fitness.(World Health Organization, 2020) WHO recommends that  
312 exercise for adults be moderate-intensity exercise with a duration of 150–300 minutes, at least twice  
313 per week, to improve health.(World Health Organization, 2020) Salat is a Muslim activity that is  
314 carried out in a scheduled, structured, repetitive, and regular manner, at least 5 times in 24 hours with  
315 varying durations (5-15 minutes per session) depending on the number of cycles of each prayer time.  
316 Therefore, Salat is categorized as moderate intensity exercise. One cycle of Salat is generally  
317 performed with an average duration of at least 2 minutes,(Osama et al., 2019) so if there are 11 cycles  
318 of prayer, it takes at least 22 minutes.

319 Salat is also a non-pharmacological therapy for cardiovascular problems, psychological  
320 disorders, neurological disorders, and musculoskeletal systems.(Chamsi-pasha & Chamsi-pasha,  
321 2021; Ghous & Malik, 2016) Properly executed salat in line with Islamic Sharia dramatically reduce  
322 heart rate, enhance sympathetic nervous system activity, and decrease parasympathetic nervous  
323 system activity.(Yousefzadeh et al., 2019) These elements are most likely related to the effects of  
324 Tahajjud on blood pressure. Tahajjud is a Muslim prayer that consists of several specific movements  
325 that implicate most of the muscles and joints, making it beneficial for maintaining balance and  
326 promoting joint and cardiovascular health.(Osama et al., 2019) Prayer movements are mostly similar  
327 to yoga and Tai Chi movements,(Doufesh et al., 2013; Wang et al., 2022) As a result, the impact of  
328 prayer on heart health tends to be similar to yoga in general.(Kamran, 2018) Tai chi has been shown

329 to reduce SBP and DBP in hypertensive subjects,(Wang et al., 2022) and yoga has been recommended  
330 as a therapeutic exercise to lower blood pressure.<sup>14,15</sup> Salat is similar to a form of meditation, it has  
331 been shown in clinical studies to improve various physiological indicators, including breathing rate,  
332 heart rate, and blood pressure.(Doufesh et al., 2014) Other studies has been reported that 30 minutes  
333 of meditation can lower blood pressure in nursing students and nurses, and salat has been shown to  
334 decrease SBP.(Conversano et al., 2021) Salat is also mentioned as a religious meditation that is useful  
335 for improving physical health.(Alabdulwahab et al., 2013; Syed, 2003) Salat reduces sympathetic  
336 nerve activity and increases parasympathetic nerve activity, thereby reducing blood  
337 pressure.(Doufesh et al., 2014)

338 According to the findings of this study, a single-time Tahajud prayer intervention resulted in  
339 an insignificant reduce in SBP (mean of 5 mmHg) and DBP (mean of 2.5 mmHg) in the normotensive  
340 young male age group who performed Tahajud prayers regularly. The effect of lowering blood  
341 pressure after Tahajud or exercise is one of the physiological mechanisms associated with an increase  
342 in baroreflex control of sympathetic nerve activity.(Picón et al., 2018) A study has also found  
343 evidence that single-bout exercise can lower blood pressure.(Picón et al., 2018) Other studies also  
344 state that A single bout of acute aerobic exercise is beneficial for reducing BP for 24 hours in both  
345 groups of hypertensive adults who are given antihypertensives and those who are not.(Saco-ledo et  
346 al., 2021) Therefore, lifestyle modifications such as diet and exercise are recommended non-  
347 pharmacological therapies for hypertension.(Conceição et al., 2021; Conversano et al., 2021; Jr et al.,  
348 2010; Picón et al., 2018) Regular exercise can prevent and inhibit the development of hypertension.  
349 Besides that, the response to exercise can also be a predictor of the development of hypertension in  
350 the future in normotensive adults.(Kircher et al., 2022; Liu et al., 2012; Szmigielska et al., 2015)

351 An acute response to exercise has been shown in normotensive and hypertensive subjects to  
352 reduce post-exercise blood pressure, referred to as post-exercise hypotension (PEH).(Jr et al., 2010)  
353 The drop in blood pressure 10 minutes after Tahajud is similar to the mechanism of PEH.(Carpio-  
354 rivera et al., 2015) PEH may be associated with decreased cardiac output as an impact of  
355 compensatory decreases in systemic peripheral vascular resistance.(Picón et al., 2018) The acute  
356 response to blood pressure is affected by the vasodilatory response (reduction of local vasodilation),  
357 increased bioavailability of vasodilators, and endothelial activation.(Farinatti et al., 2021; Hamer &  
358 Steptoe, 2012) Increased parasympathetic modulation, decreased sympathetic activity, and increased  
359 baroreflex sensitivity which contribute to post-exercise hypotension.(Doufesh et al., 2013;  
360 Nascimento et al., 2017) Another study found that moderate and high-intensity exercise reduced  
361 blood pressure, with a significant reduction in SBP after 10 and 20 minutes of post-  
362 exercise.(Conceição et al., 2021)

363

## 364 CONCLUSION

365 The present study investigated the impact of a single bout of Tahajjud prayer on the acute  
366 blood pressure response in normotensive sedentary young men. The findings revealed that engaging  
367 in Tahajjud prayer did not yield significant effect on the acute blood pressure response in this specific  
368 population. Following the prayer session, there was a notable decrease in systolic and diastolic blood  
369 pressure levels compared to baseline measurements. These results suggest that Tahajjud prayer may  
370 have a beneficial impact on blood pressure regulation, even in individuals with normal blood pressure  
371 and sedentary lifestyles. The observed decrease in blood pressure after the prayer session highlights  
372 the potential role of this spiritual practice as a non-pharmacological intervention for blood pressure  
373 management.

374 Further research is warranted to explore the underlying mechanisms behind the blood  
375 pressure-lowering effects of Tahajjud prayer and to investigate its long-term effects on blood pressure  
376 control and cardiovascular health. Additionally, studies involving diverse populations and  
377 incorporating objective measurements, such as ambulatory blood pressure monitoring, would provide  
378 valuable insights into the broader implications of Tahajjud prayer on blood pressure regulation.  
379 Overall, these findings contribute to the growing body of research exploring the intersection of  
380 spirituality and health, indicating the potential of Tahajjud prayer as a modality for promoting  
381 cardiovascular well-being among normotensive sedentary young men.

382

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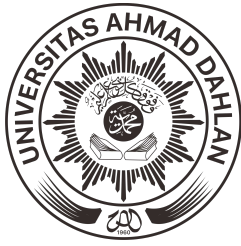
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**SURAT TUGAS**

Nomor: F1/142/J.3/VII/2023

Dekan Fakultas Keguruan dan Ilmu Pendidikan Universitas Ahmad Dahlan memberikan tugas kepada:

NO	NAMA	NIY	Program Studi
1.	Dra. Alif Muarifah, S.Psi., M.Si., Ph.D.	60880057	Bimbingan dan Konseling-S1

Untuk menjadi Reviewer dalam kegiatan “Reviewer International Journal of General Medicine” yang diselenggarakan pada:

Hari : Senin  
Tanggal : 24 Juli 2023  
Waktu : Pukul 8:00:00 WIB-selesai  
Tempat : Daring (online)

Demikian surat tugas ini diberikan kepada yang bersangkutan untuk diketahui dan dilaksanakan sebaik-baiknya serta menyerahkan laporan setelah kegiatan berakhir.



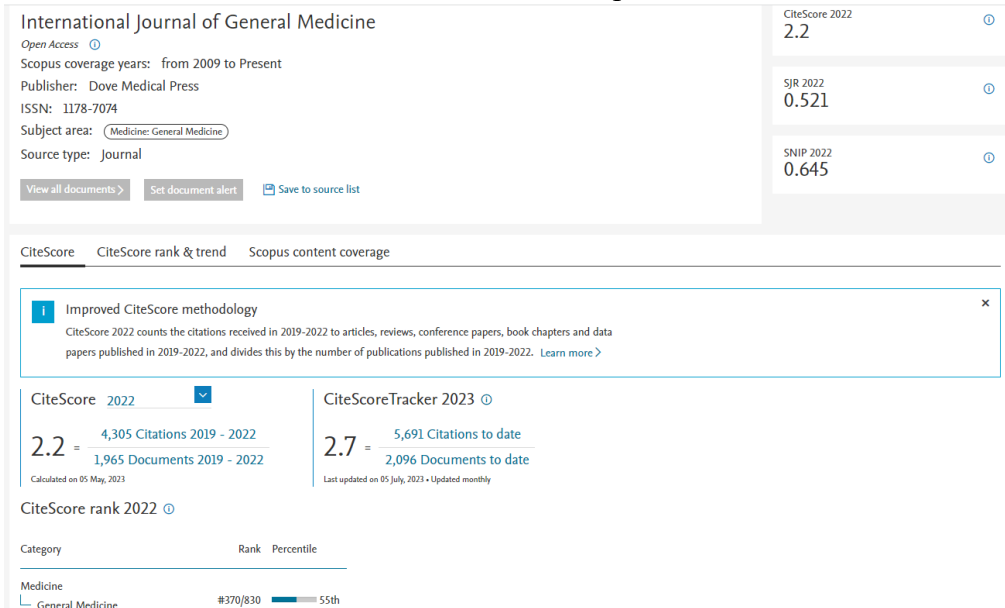
Yogyakarta, 21 Juli 2023

Dekan

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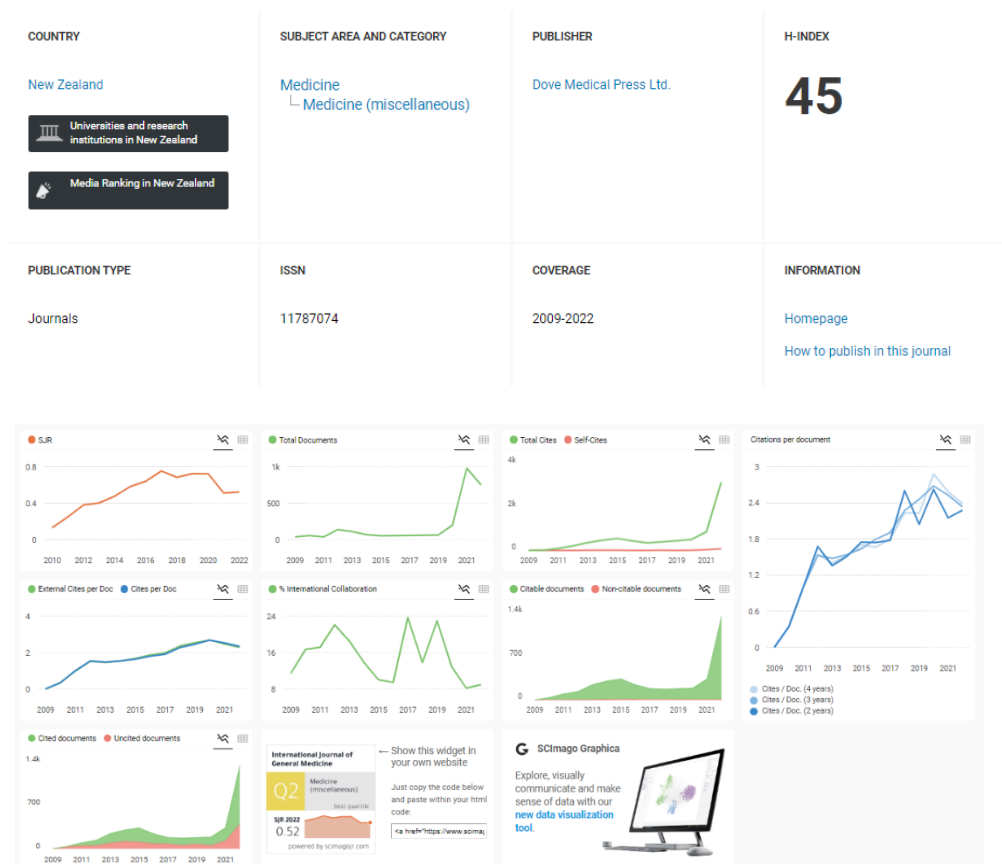
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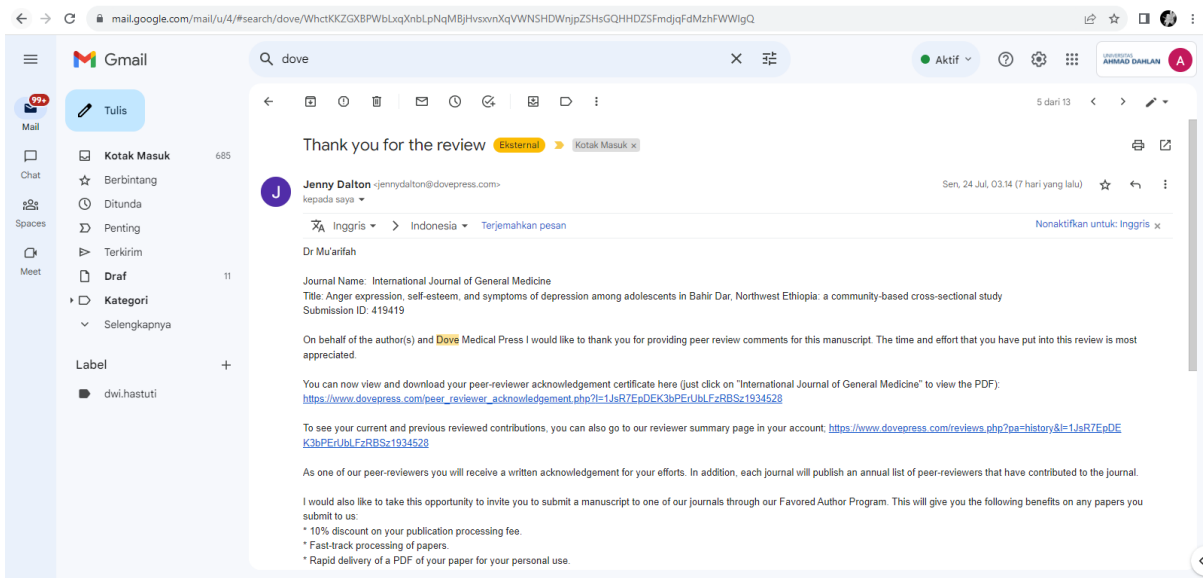


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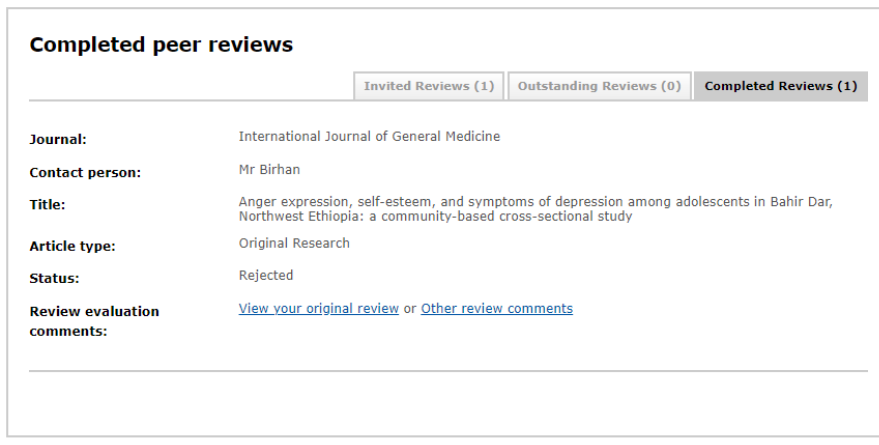
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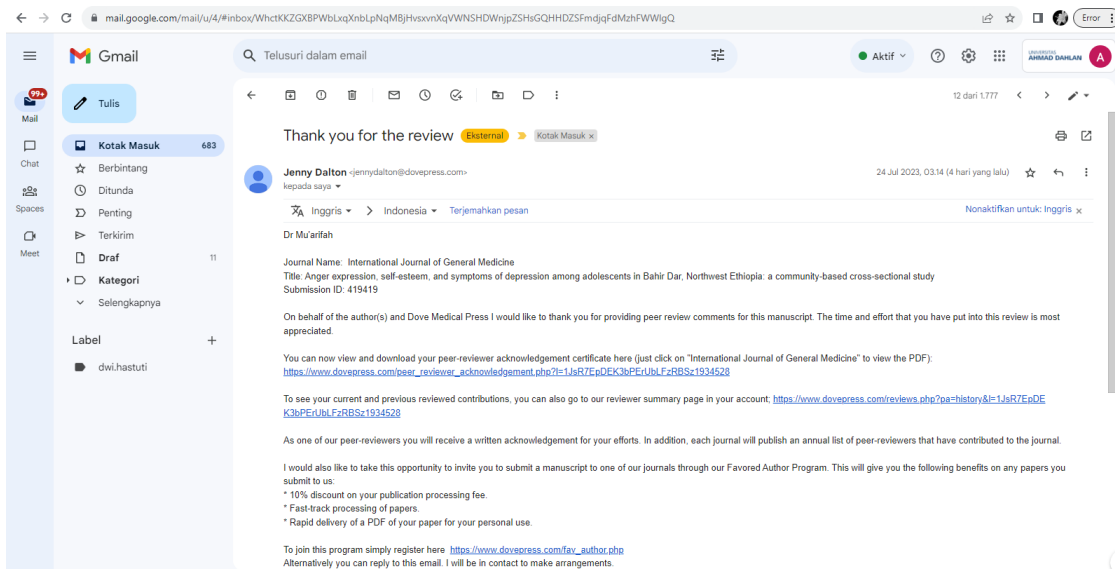
## Permintaan Review



## Status Review Selesai



## Pemberitahuan Selesai Review



## To whom it may concern

Dr Alif Mu'arifah has reviewed 1 submission in the journal *International Journal of General Medicine* during 2023.

Thank you for your contribution to the journal. The dedication of our reviewers is invaluable in safeguarding the quality and high standard of academic integrity in the research we publish.

Regards

Angela Jones

General Manager, Dove Medical Press Ltd

Dove Medical Press (NZ) Ltd, 44 Corinthian Drive, Albany, Auckland, New Zealand

PO Box 300-008, Albany, Auckland, 0752, New Zealand

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Manuscript ID number: 419419

**Title of paper:** Anger expression, self-esteem, and symptoms of depression among adolescents in Bahir Dar, Northwest Ethiopia: a community-based cross-sectional study

**Reviewed by:** Dr Mu'arifah on 22 July 2023

---

### **Title & Abstract**

1. Do the title and abstract cover the main aspect of the work?

Yes, the title and abstract cover the main aspect of the work

### **Introduction**

2. Does the introduction provide background and information relevant to the study?

The background lack of describing the research idea and the the novelty of the research.

### **Material and Methods**

3. Are the methods clear and replicable? Do all the results presented match the methods described?

The methods clear and replicable. The results presented match the methods described.  
The author is quite detailed in explaining each part of the method.

### **Results**

4. If relevant are the results novel? Does the study provide an advance in the field? Is the data plausible?

Enriches the literature in depression studies but has not revealed research novelties.  
The data plausible

### **Discussion**

5. Do the findings described by the author correlate with the results? Are the findings relevant?

the discussion is lack

### **Conclusion**

6. Do the conclusions correlate to the results found?

Yes, the conclusions correlate to the results found

### **Figures & Tables**

7. If the author has provided figures and tables are the figures and tables clear and legible? Are the figures free from unnecessary modification?

there are no tables and figures

8. Does the paper raise any concerns?

the study does not raise any ethical concern  
the statistical analysis appropriate to the research

### **Competing interest**

9. Do any of the authors' competing interests raise concerns about the validity of the study i.e. have the authors' competing interests created a bias in the reporting of the results and conclusions?

The authors declare that they have no competing interests.

### **Recommendations to the Editor**

10. Recommendations to Editors

Poor

11. Would you be willing to review a revision of this manuscript?

No

**Additional comments**

No additional comments

**Confidential comments for Editor**

-

**Competing Interest Disclosure**

none

**Peer Reviewer Competing Interest Disclosure**

I declare no Competing Interest

publicationethics.org

**GUIDELINES:  
ETHICAL GUIDELINES  
FOR PEER REVIEWERS**

**GUIDELINES**



VERSION 2: September 2017

## ETHICAL GUIDELINES FOR PEER REVIEWERS

### Summary

Peer reviewers play a role in ensuring the integrity of the scholarly record. The peer review process depends to a large extent on the trust and willing participation of the scholarly community and requires that everyone involved behaves responsibly and ethically. Peer reviewers play a central and critical part in the peer review process, but may come to the role without any guidance and be unaware of their ethical obligations. Journals have an obligation to provide transparent policies for peer review, and reviewers have an obligation to conduct reviews in an ethical and accountable manner. Clear communication between the journal and the reviewers is essential to facilitate consistent, fair and timely review. **COPE** has heard cases from its members related to peer review issues and bases these guidelines, in part, on the collective experience and wisdom of the **COPE** Forum participants. It is hoped they will provide helpful guidance to researchers, be a reference for editors and publishers in guiding their reviewers, and act as an educational resource for institutions in training their students and researchers.

Peer review, for the purposes of these guidelines, refers to reviews provided on manuscript submissions to journals, but can also include reviews for other platforms and apply to public commenting that can occur pre- or post-publication. Reviews of other materials such as preprints, grants, books, conference proceeding submissions, registered reports (pre-registered protocols), or data will have a similar underlying ethical framework, but the process will vary depending on the source material and the type of review requested. The model of peer review will also influence elements of the process.



## MODELS OF PEER REVIEW

There are different types or models of peer review, all of which have various advantages and disadvantages. See the COPE document **Who ‘owns’ peer reviews?’** (section titled ‘models of peer review’) (<https://doi.org/10.24318/rouP8ld4>) for an explanation of various peer review models. It is important to be aware of the model of peer review that the journal or platform uses before agreeing to undertake the peer review. The chart below, reproduced with permission from QUT, Australia, identifies key elements of the various models related to processes in peer review. Reviewers should understand their responsibilities related to confidentiality of the process and ownership of the review product based on the model of peer review being used.

There are many different models of peer review. A peer review process may operate to almost any combination in the following table by selecting one option from each row:

<b>Timing</b>	Preprints	Pre-publication	Post-publication
<b>Identifiability</b>	Double-anonymous	Single-anonymous	Open
<b>Mediation</b>	Editors mediate all interactions between reviewers and authors	Reviewers interact with one another openly	Reviewers and authors all interact with one another openly
<b>Publication</b>	Peer reviews are not published	Peer reviews are published but not signed	Peer reviews are published and signed
<b>Facilitation</b>	Review facilitated by a journal	Review facilitated by a third party	Review facilitated by authors
<b>Ownership</b>	Review owned by a journal or third party	Review owned by the authors of the reviews	Shared or mixed ownership of reviews

Using the chart above, a standard, anonymous, peer review process for a journal could be:



## BEING A REVIEWER

### Professional responsibility

Authors who have benefited from the peer review process should consider becoming peer reviewers as a part of their professional responsibilities. Some journals require a formal process of appointment to the review panel, and some require specific expertise; anyone interested in becoming a reviewer should look for the journal guidelines on peer review and follow any requirements posted. In order to assign appropriate reviewers, editors must match reviewers with the scope of the content in a manuscript to get the best reviews possible. Potential reviewers should provide journals with personal and professional information that is accurate and a fair representation of their expertise, including verifiable and accurate contact information. It is important to recognise that impersonation of another individual during the review process is considered serious misconduct (eg, see **COPE Case 12-12: Compromised peer review system in published papers**) (<https://COPE.onl/case-review-2>). When approached to review, agree to review only if you have the necessary expertise to assess the manuscript and can be unbiased in your assessment. It is better to identify clearly any gaps in your expertise when asked to review.

### Competing interests

Ensure you declare all potential competing, or conflicting, interests. If you are unsure about a potential competing interest that may prevent you from reviewing, do raise this. Competing interests may be personal, financial, intellectual, professional, political or religious in nature. If you are currently employed at the same institution as any of the authors or have been recent (eg, within the past 3 years) mentors, mentees, close collaborators or joint grant holders, you should not agree to review. In addition, you should not agree to review a manuscript just to gain sight of it with no intention of submitting a review, or agree to review a manuscript that is very similar to one you have in preparation or under consideration at another journal.

### Timeliness

It is courteous to respond to an invitation to peer review within a reasonable time frame, even if you cannot undertake the review. If you feel qualified to judge a particular manuscript, you should agree to review only if you are able to return a review within the proposed or mutually agreed time frame. Always inform the journal promptly if your circumstances change and you cannot fulfil your original agreement or if you require an extension. If you cannot review, it is helpful to make suggestions for alternative reviewers if relevant, based on their expertise and without any influence of personal considerations or any intention of the manuscript receiving a specific outcome (either positive or negative).

## CONDUCTING A REVIEW

### Initial steps

Read the manuscript, supplementary data files and ancillary material thoroughly (eg, reviewer instructions, required ethics and policy statements), getting back to the journal if anything is not clear and requesting any missing or incomplete items you need. Do not contact the authors directly without the permission of the journal. It is important to understand the scope of the review before commencing (ie, is a review of raw data expected?).

### Confidentiality

Respect the confidentiality of the peer review process and refrain from using information obtained during the peer review process for your own or another's advantage, or to disadvantage or discredit others (eg, see **COPE Case 14-06: Possible breach of reviewer confidentiality**) (<http://COPE.onl/case-breach>). Do not involve anyone else in the review of a manuscript (including early career researchers you are mentoring), without first obtaining permission from the journal (eg, see **COPE Case 11-29: Reviewer asks trainee to review manuscript**) (<https://COPE.onl/case-reviewer>). The names of any individuals who have helped with the review should be included so that they are associated with the manuscript in the journal's records and can also receive due recognition for their efforts.

### Bias and competing interests

It is important to remain unbiased by considerations related to the nationality, religious or political beliefs, gender or other characteristics of the authors, origins of a manuscript or by commercial considerations. If you discover a competing interest that might prevent you from providing a fair and unbiased review, notify the journal and seek advice (eg, see **COPE Case 15-05: Reviewer requests to be added as an author after publication**) (<https://COPE.onl/case-author>). While waiting for a response, refrain from looking at the manuscript and associated material in case the request to review is rescinded. Similarly, notify the journal as soon as possible if you find you do not have the necessary expertise to assess the relevant aspects of a manuscript so as not to unduly delay the review process. In the case of double-anonymous review, if you suspect the identity of the author(s) notify the journal if this knowledge raises any potential competing or conflict of interest.

### Suspicion of ethics violations

If you come across any irregularities with respect to research and publication ethics do let the journal know (eg, see **COPE Case 02-11: Contacting research ethics committees with concerns over studies**) (<https://COPE.onl/case-research>). For example, you may have concerns that misconduct occurred during either the research or the writing and submission of the manuscript, or you may notice substantial similarity between the manuscript and a concurrent submission to another journal or a published article. In the case of these or any other ethical concerns, contact the editor directly and do not attempt to investigate on your own. It is appropriate to cooperate, in confidence, with the journal, but not to personally investigate further unless the journal asks for additional information or advice.

## CONDUCTING A REVIEW (CONT.)

### Transferability of peer review

Publishers may have policies related to transferring peer reviews to other journals in the publisher's portfolio (sometimes referred to as portable or cascading peer review). Reviewers may be asked to give permission for the transfer of their reviews if that is journal policy. If a manuscript is rejected from one journal and submitted to another, and you are asked to review that same manuscript, you should be prepared to review the manuscript afresh as it may have changed between the two submissions and the journal's criteria for evaluation and acceptance may be different. In the interests of transparency and efficiency it may be appropriate to provide your original review for the new journal (with permission to do so from the original journal), explaining that you had reviewed the submission previously and noting any changes. (See discussion<sup>2</sup> with Pete Binfield and Elizabeth Moylan highlighting some of the issues surrounding portable peer review).

## PREPARING A REPORT

### Format

Follow journals' instructions for writing and posting the review. If a particular format or scoring rubric is required, use the tools supplied by the journal. Be objective and constructive in your review, providing feedback that will help the authors to improve their manuscript. For example, be specific in your critique, and provide supporting evidence with appropriate references to substantiate general statements, to help editors in their evaluation. Be professional and refrain from being hostile or inflammatory and from making libellous or derogatory personal comments or unfounded accusations (eg, see **COPE Case 08-13: Personal remarks within a post-publication literature forum**) (<https://cope.onl/case-remarks>).

### Appropriate feedback

Bear in mind that the editor requires a fair, honest, and unbiased assessment of the strengths and weaknesses of the manuscript. Most journals allow reviewers to provide confidential comments to the editor as well as comments to be read by the authors. The journal may also ask for a recommendation to accept/revise/reject; any recommendation should be congruent with the comments provided in the review. If you have not reviewed the whole manuscript, do indicate which aspects of the manuscript you have assessed. Ensure your comments and recommendations for the editor are consistent with your report for the authors; most feedback should be put in the report that the authors will see. Confidential comments to the editor should not be a place for denigration or false accusation, done in the knowledge that the authors will not see your comments.

## PREPARING A REPORT (CONT.)

### Language and style

Remember it is the authors' paper, so do not attempt to rewrite it to your own preferred style if it is basically sound and clear; suggestions for changes that improve clarity are, however, important. In addition, be aware of the sensitivities surrounding language issues that are due to the authors writing in a language that is not their first or most proficient language, and phrase the feedback appropriately and with due respect.

### Suggestions for further work

It is the job of the peer reviewer to comment on the quality and rigour of the work they receive. If the work is not clear because of missing analyses, the reviewer should comment and explain what additional analyses would clarify the work submitted. It is not the job of the reviewer to extend the work beyond its current scope. Be clear which (if any) suggested additional investigations are essential to support claims made in the manuscript under consideration and which will just strengthen or extend the work

### Accountability

Prepare the report by yourself, unless you have permission from the journal to involve another person. Refrain from making unfair negative comments or including unjustified criticisms of any competitors' work that is mentioned in the manuscript. Refrain from suggesting that authors include citations to your (or an associate's) work merely to increase citation counts or to enhance the visibility of your or your associate's work; suggestions must be based on valid academic or technological reasons. Do not intentionally prolong the review process, either by delaying the submission of your review or by requesting unnecessary additional information from the journal or author.

If you are the editor handling a manuscript and decide to provide a review of that manuscript yourself (perhaps if another reviewer could not return a report), do this transparently and not under the guise of an anonymous additional reviewer.

## WHAT TO CONSIDER AFTER PEER REVIEW

If possible, try to accommodate requests from journals to review revisions or resubmissions of manuscripts you have reviewed previously. It is helpful to respond promptly if contacted by a journal about matters related to your review and to provide the information required. Similarly, contact the journal if anything relevant comes to light after you have submitted your review that might affect your original feedback and recommendations. Continue to respect the confidential nature of the review process and do not reveal details of the manuscript after peer review unless you have permission from the author and the journal (eg, see **COPE Case 13-15: Online posting of confidential draft by peer reviewer**) (<https://cope.onl/case-online>). See the **COPE discussion document Who ‘owns’ peer reviews?**<sup>1</sup> for a fuller discussion of the issues) (<https://doi.org/10.24318/rouP8ld4>).

## PEER REVIEW TRAINING AND MENTORING

Take advantage of opportunities to enrol in mentorship or training programmes to improve your peer review skills. Offer to mentor early career researchers as they learn the peer review process. Supervisors who wish to involve their students or junior researchers in peer review must request permission from the editor and abide by the editor’s decision. In cases where a student performs the review under the guidance of the supervisor, that should be noted and the student should be acknowledged as the reviewer of record. It may also be helpful to read the reviews from the other reviewers, if these are provided by the journal, to improve your own understanding of the topic and the reason for the editorial decision. Sense about Science have a helpful guide for peer review written for early career researchers.<sup>3</sup> There are also training courses available for those starting out in peer review, for example, Publons provide a free online training course.<sup>4</sup>

## FURTHER READING

1. COPE Council. Who 'owns' peer reviews? — English.  
<https://doi.org/10.24318/rouP8ld4> Version 2: September 2017.
2. Moylan E, Binfield P. Who 'owns' peer reviews podcast.  
<http://b.link/p-review> ↗
3. Sense about Science. Peer Review: the nuts and bolts.  
<http://b.link/sas-peer> ↗
4. Publons. Learn to peer review with confidence  
<http://b.link/publ> ↗

## AUTHOR CONTRIBUTIONS

### Conceptualisation:

Tara Hoke, Trevor Lane, Charon Pierson and Elizabeth Moylan revised the 2013 guidelines that were originally conceptualised and written by Irene Hames on behalf of COPE Council. All authors are listed in alphabetical order. We describe contributions to this project as follows:

### 2013 Version:

#### Conceptualisation:

Irene Hames

#### Writing:

Irene Hames

### 2017 Version:

#### Conceptualisation:

Elizabeth Moylan and Charon Pierson

#### Writing – original draft preparation:

Elizabeth Moylan and Charon Pierson

#### Writing – review and editing:

Tara Hoke, Trevor Lane, Elizabeth Moylan and Charon Pierson

#### Supervision:

Charon Pierson

#### Visualisation:

Elizabeth Moylan and Charon Pierson

## ACKNOWLEDGEMENTS

We are grateful for the feedback and advice received from Kelly Cobey, John Hilton, Mark Hooper and Irene Hames which shaped the 2017 revision.

Links to other sites are provided for your convenience but COPE accepts no responsibility or liability for the content of those sites.

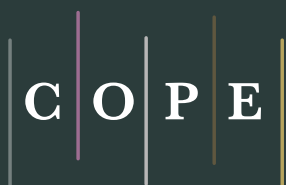
Cite this as: COPE Council. COPE Ethical guidelines for peer reviewers — English.

<https://doi.org/10.24318/cope.2019.1.9>

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Version 2: September 2017.

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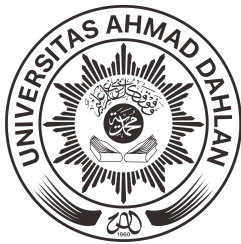
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PROMOTING INTEGRITY IN SCHOLARLY  
RESEARCH AND ITS PUBLICATION





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Kampus 5 : Ki Ageng Pemanahan 19, Sorosutan Yogyakarta  
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**SURAT TUGAS**

Nomor: F1/143/J.3/VII/2023

Dekan Fakultas Keguruan dan Ilmu Pendidikan Universitas Ahmad Dahlan memberikan tugas kepada:

NO	NAMA	NIY	Program Studi
1.	Dra. Alif Mu'arifah, S.Psi., M.Si.Ph.D.	60880057	Bimbingan dan Konseling -S1

Untuk menjadi Reviewer dalam kegiatan “Reviewer Journal Psychology Research and Behavior Management” yang diselenggarakan pada:

Hari : Selasa  
Tanggal : 4 Juli 2023  
Waktu : Pukul 8:00:00 WIB-selesai  
Tempat : Daring(Online)

Demikian surat tugas ini diberikan kepada yang bersangkutan untuk diketahui dan dilaksanakan sebaik-baiknya serta menyerahkan laporan setelah kegiatan berakhir.



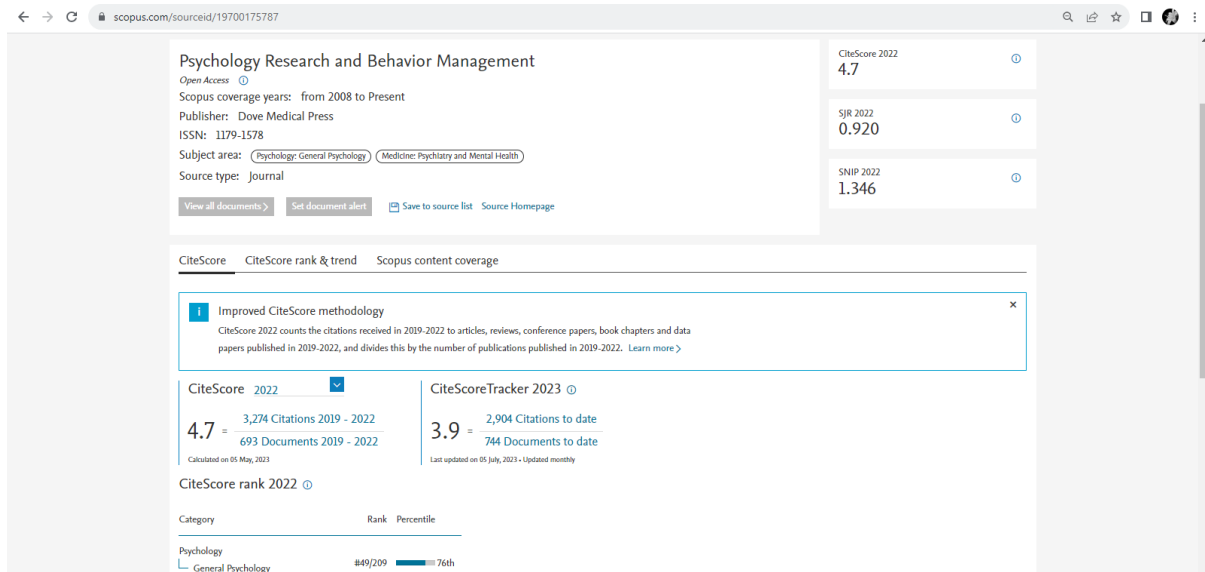
Yogyakarta, 1 Juli 2023

Dekan

Muhammad Sayuti, M.Pd., M.Ed., Ph.D.  
NIPM 19710317 201601 111 0763796

# HISTORI REVIEW JURNAL PSYCHOLOGY RESEARCH AND BEHAVIOR MANAGEMENT

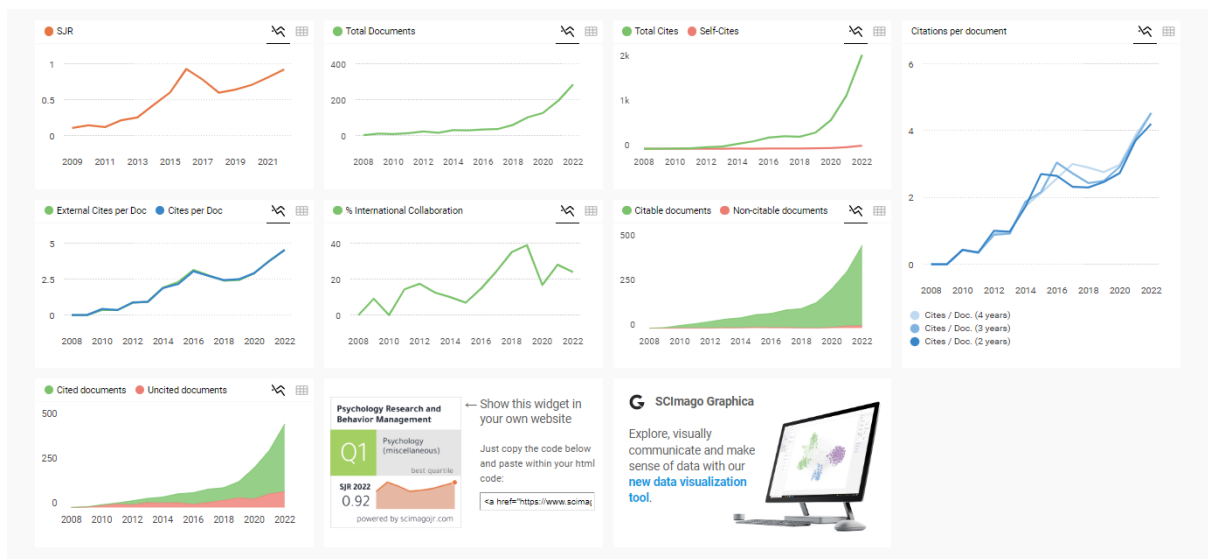
## Profil Jurnal di Scopus



## Profil Jurnal di Scimago

### Psychology Research and Behavior Management

<b>COUNTRY</b> New Zealand Universities and research institutions in New Zealand Media Ranking in New Zealand	<b>SUBJECT AREA AND CATEGORY</b> Medicine Psychiatry and Mental Health Psychology Psychology (miscellaneous)	<b>PUBLISHER</b> Dove Medical Press Ltd.	<b>H-INDEX</b> <b>42</b>
<b>PUBLICATION TYPE</b> Journals	<b>ISSN</b> 11791578	<b>COVERAGE</b> 2017-2022	<b>INFORMATION</b> <a href="#">Homepage</a> <a href="#">How to publish in this journal</a>



## Permintaan Review Jurnal

The screenshot shows a Gmail interface with a search bar containing 'dove'. The email is from Mrs Beverley Finn (beverleyfinn@dovepress.com) to alif.muarifah. The subject is 'Dove Medical Press invites you to review a paper for Psychology Research and Behavior Management'. The submission ID is 423270. The email body includes the journal name, article title 'Parental attachment and proactive-reactive aggression in adolescence: The mediating role of self-control and perspective taking', author 'Dr Qingqing Li', and an abstract. The abstract discusses identifying risk and protective factors of aggressive behavior during adolescence and its relation to attachment quality and aggression.

## Status Review Selesai

The dashboard shows 'Completed peer reviews' with a progress bar indicating 0 Invited Reviews, 0 Outstanding Reviews, and 1 Completed Review. The details for the completed review are:

- Journal:** Psychology Research and Behavior Management
- Contact person:** Dr Li
- Title:** Parental attachment and proactive-reactive aggression in adolescence: The mediating role of self-control and perspective taking
- Article type:** Original Research
- Status:** Under revision
- Review evaluation comments:** [View your original review](#) or [Other review comments](#)

## Pemberitahuan Selesai Review

The screenshot shows a Gmail email from Jenny Dalton (jennydalton@dovepress.com) to alif.muarifah. The subject is 'Thank you for the review'. The email body thanks the reviewer for providing peer review comments and provides a link to download a peer-reviewer acknowledgement certificate. It also mentions that the reviewer will receive a written acknowledgement and that their name will be published in the journal's annual list of peer-reviewers.

## To whom it may concern

Dr Alif Muarifah has reviewed 1 submission in the journal *Psychology Research and Behavior Management* during 2023.

Thank you for your contribution to the journal. The dedication of our reviewers is invaluable in safeguarding the quality and high standard of academic integrity in the research we publish.

Regards

Angela Jones

General Manager, Dove Medical Press Ltd

Dove Medical Press (NZ) Ltd, 44 Corinthian Drive, Albany, Auckland, New Zealand

PO Box 300-008, Albany, Auckland, 0752, New Zealand

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Manuscript ID number: 423270

Title of paper: Parental attachment and proactive-reactive aggression in adolescence: The mediating role of self-control and perspective taking

Reviewed by: Dr Muarifah on 19 July 2023

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### **Title & Abstract**

1. Do the title and abstract cover the main aspect of the work?

Yes, the title and abstract cover the main aspect of the work.

### **Introduction**

2. Does the introduction provide background and information relevant to the study?

It provides enough, but lacks an explanation of the novelty research, please provide reasons why this research is important to be researched especially in the research setting, add the latest aggression data in your research setting.

### **Material and Methods**

3. Are the methods clear and replicable? Do all the results presented match the methods described?

-Research procedures are not clearly outlined.  
-Data analysis is not explained in the method section.

### **Results**

4. If relevant are the results novel? Does the study provide an advance in the field? Is the data plausible?

The data is plausible, the results support previous research and provide sufficient advance in the field if explained more comprehensively.

### **Discussion**

5. Do the findings described by the author correlate with the results? Are the findings relevant?

- There is still a lack of explanation of the interpretation of the analysis results  
- The researcher examined both father and mother attachment but did not explain the difference in attachment between father and mother in the discussion.

### **Conclusion**

6. Do the conclusions correlate to the results found?

Yes, the conclusion provides the result found.

### **Figures & Tables**

7. If the author has provided figures and tables are the figures and tables clear and legible? Are the figures free from unnecessary modification?

The figures and tables are clear and legible

8. Does the paper raise any concerns?

- It doesn't raise any concerns and ethical concern.  
- Ttistical analysis is appropriate to the research.  
- The references is relevant to the study

### **Competing interest**

9. Do any of the authors' competing interests raise concerns about the validity of the study i.e. have the authors' competing interests created a bias in the reporting of the results and conclusions?

No

### **Recommendations to the Editor**

10. Recommendations to Editors

Fair

11. Would you be willing to review a revision of this manuscript?

Yes

**Additional comments**

No additional comments

**Confidential comments for Editor**

-

**Competing Interest Disclosure**

none

**Peer Reviewer Competing Interest Disclosure**

I declare that there is no conflict of interest.

**Parental attachment and proactive-reactive aggression in adolescence: The mediating role of self-control and perspective taking**

Li, Qingqing<sup>1,2</sup>: [liqing\\_psy@ccnu.edu.cn](mailto:liqing_psy@ccnu.edu.cn)

Gao, Ming<sup>3</sup>: [gaoming@dentons.cn](mailto:gaoming@dentons.cn)

Deng, Yanfang<sup>3</sup>: [yanfang.deng@dentons.cn](mailto:yanfang.deng@dentons.cn)

Zhou, Zongkui<sup>1,2</sup>: [zhouzk@ccnu.edu.cn](mailto:zhouzk@ccnu.edu.cn)

Wang, Jing<sup>1,2\*</sup>: [jingwang888@ccnu.edu.cn](mailto:jingwang888@ccnu.edu.cn)

1 Central China Normal University, School of Psychology, Wuhan, China

2 Ministry of Education, Key Laboratory of Adolescent Cyberpsychology and Behavior (Central China Normal University), Wuhan, China

3 Beijing Dentons (Yichang) Law Office, Yichang, China

\* Corresponding author: Wang, Jing, LuoYu Road 152, Hongshan region, Wuhan, China

**Acknowledgements**

None.

**Competing Interests**

None.

## **Abstract**

Identifying risk and protective factors of aggressive behavior during adolescence is beneficial for the intervention and prevention treatments. Although studies show that attachment quality is closely related to aggression, the underlying psychological mechanisms remain unclear. This study investigated the links of parental attachment with proactive and reactive aggression and examined the mediating role of perspective taking and self-control among 2982 Chinese adolescents ( $M = 17.28$ ,  $SD = 0.87$ ). Results showed that participants possessing higher attachment security with parents were more likely to report lower levels of proactive and reactive aggression. And, self-control and perspective taking were positively associated with parental attachment, and negatively associated with both types of aggression. Moreover, structural equation models indicated that parental attachment directly, and indirectly predicted proactive and reactive aggression through self-control and perspective taking. Overall, this study contributes to a more comprehensive understanding of the explanatory mechanisms that link adolescent-parent attachment and aggression, and suggest that high quality of adolescent-parent interactions may promote adolescents' self-control and perspectives taking, which further reduces their aggression propensity.

**Keywords:** attachment; aggression; self-control; perspective taking; adolescence



## **1. Introduction**

In the past decades, research around aggressive behaviors has become a typical trend in developmental psychology and psychopathology. Persistent patterns of aggressive behavior in early life are regarded as the initial symptom of subsequent substance abuse, violent crime, and health problems (Fite, Raine, Stouthamer-Loeber, Loeber, & Pardini, 2009; Odgers et al., 2008). Researchers have divided aggression into proactive and reactive aggression, and this dichotomous view may promise to shed light on the different etiological pathways of aggression (Raine et al., 2006; Voulgaridou & Kokkinos, 2015). Proactive aggression is described as instrumental and organized behavior aimed at gaining a reward or social dominance over others, whereas reactive aggression has been characterized as a response to provocation or a perceived threat (Marsee & Frick, 2007; Smithmyer, Hubbard, & Simons, 2000). Identifying risk and protective factors of aggressive behavior during adolescence helps us to recognize the occurrence and suspension of aggression, which ultimately benefits intervention and prevention treatments. Recently, abundant evidence has accumulated in exploring the link of parental attachment with aggression. The present study aimed to investigate the links of parental attachment with proactive and reactive aggression and to explore the role of self-control and perspective taking as potential mediators.

## **1.1 The link between parental attachment and aggression**

Parental attachment, regarded as secure bonds between children and their parents, which serves as a secure base for exploration and the development of cognitive, social, and emotional competence from childhood to adulthood (Allen et al., 2003; Buist, Deković, Meeus, & van Aken, 2004; Laursen & Collins, 2009). According to Bowlby's (1988) attachment theory, early experiences of relationships with parents shape the internal working models (cognitive representation) of self and other, which are believed to guide distinctive patterns of cognition, affect regulation, and behavior in family interactions as well as in subsequent peer and close relationships (Ammaniti, Van Ijzendoorn, Speranza, & Tambelli, 2000; Collins, 1996; Lopez & Brennan, 2000). Specifically, individuals who experience caring, responsive, and trustworthy relationships with parents are presumed to develop secure working models and thereby later adopting a similarly trusting, open, and collaborative orientation toward peers and partners, whereas individuals who experience neglectful, rejecting, and intrusive relationships with parents tend to develop insecure working models, which forecast problematic interpersonal functioning (Michiels, Grietens, Onghena, & Kuppens, 2008).

Empirical evidence suggests that adolescents higher in attachment insecurity are more likely to engage in psychological aggression, physical and verbal aggression, hostility, and proactive and reactive aggression (Bonab & Koohsar, 2011; Buist et al., 2004; Grych & Kinsfogel, 2010; Hare, Miga, & Allen, 2009; Kokkinos, Algiovanoglou,

& Voulgaridou, 2019; Savage, 2014). On the other hand, secure attachment may play an important role in buffering deleterious effects in adolescence. For instance, Hare and colleagues (2009) found that attachment security moderated the association of paternal aggression with subsequent adolescent aggression, suggesting that attachment may help attenuated the transmission of destructive conflict strategies across generations (Cyr, Pasalich, McMahon, & Spieker, 2014). Kokkinos et al. (2019) found that parental attachment was negatively associated with proactive and reactive aggression, and moderated the links of emotion regulation difficulty with proactive and reactive aggression. In summary, the quality of parental attachment was assumed to be negatively associated with proactive and reactive aggression.

## **1.2 The mediating role of self-control**

Conceptually, self-control is defined as the ability to inhibit and alter dominant impulses or responses to support the pursuit of long-term and valued goals (Baumeister, Vohs, & Tice, 2007; Inzlicht, Werner, Briskin, & Roberts, 2021). According to the self-control theory, the development of self-control greatly depends on the effectiveness of parenting (e.g., monitoring, recognizing, and disciplining), and the negative parenting may impede the development of self-control development, which in turn predicts externalizing and deviant behaviors (Gottfredson & Hirschi, 1990). Empirical and review studies demonstrate that effective parenting practices could foster the ability to monitor and control emotion and behavior among children and adolescents (Altenburger & Schoppe-

Sullivan, 2021; Burt, Simons, & Simons, 2006; Heylen et al., 2015; Susic-Vasic et al., 2017; Valcan, Davis, & Pino-Pasternak, 2018). Specifically, warm and caring parent-adolescent relationships are positively associated with self-regulation behavior across early to late adolescence (Farley & Kim-Spoon, 2014; Li et al., 2019; Moilanen, Shaw, & Fitzpatrick, 2010), whereas insensitive and harsh parenting is related to lower inhibitory self-control and executive functioning (Halse, Steinsbekk, Hammar, Belsky, & Wichstrøm, 2019; Heylen et al., 2015; Lam, Chung, & Li, 2018).

Empirical and theoretical research has suggested that self-control plays an important protective role in inhibiting the formation and development of aggression (Denson, DeWall, & Finkel, 2012; DeWall, Finkel, & Denson, 2011). Research on adolescence shows that possessing high self-control tend to be associated with more positive coping and prosocial behaviors (Li, Delvecchio, Lis, Nie, & Di Riso, 2016; Nie, Li, & Vazsonyi, 2016). Furthermore, self-control may be an important mechanism explains the effect of parental attachment on adolescents' maladaptive responding and aggression. Specifically, secure parental attachment is linked to higher self-control, which in turn is associated with more prosocial behaviors (Nie et al., 2016) and fewer rule-breaking behaviors (Sun et al., 2022). Lower quality of adolescent-parent interactions coincides with dysfunctional self-regulation in adolescent, which in turn was associated with higher maladaptive peer relationships (Liu et al., 2020; Özdemir et al., 2013). Moreover, a cross-cultural study demonstrates that paternal attachment influenced adolescents' adjustment difficulties

directly, and indirectly through self-control (Mancinelli et al., 2021). Therefore, parental attachment quality was assumed to be positively associated with higher self-control, and negatively associated with aggression.

### **1.3 The mediating role of perspective taking**

Perspective taking (i.e., cognitive empathy), refers to the ability to recognize and understand other people's emotions, viewpoints, and situations, and plays an important role in social adaptation and interpersonal relationship (Anderson & Keltner, 2002; Blair, 2005; Davis, 1983; Decety & Svetlova, 2012). Research has indicated that the relationships with parents play a socializing role for adolescents' perspective taking (Batanova & Loukas, 2012). More specifically, individuals who have a secure attachment with parents might show higher levels of perspective-taking and empathic concern than their counterparts (Henschel et al., 2020; Joireman, Needham, & Cummings, 2002). A study based on 2,665 adolescents found that secure attachment to parents was associated with greater perspective taking (Laghi, D'Alessio, Pallini, & Baiocco, 2009). Conversely, insecure-anxious individuals tend to focus on their own unregulated emotions when exposed to others in distress (Wei, Liao, Ku, & Shaffer, 2011). Taubner et al. (2013) suggested that adolescents' perspective-taking moderated the relationship between psychopathic traits and proactive aggression, suggesting that perspective-taking may serve as a protective factor in preventing proactive aggression in adolescence.

Perspective taking is recognized to be important in understanding the needs of others in distress and to act as a protective factor against aggression (Gómez-Leal, Megías-Robles, Gutiérrez-Cobo, Cabello, & Fernández-Berrocal, 2020; Loudin, Loukas, & Robinson, 2003;). Research shows that perspective taking facilitates prosocial actions and mitigates aggressive behaviors (Carlo et al., 2010a). Adolescents with lower perspective taking are more likely to engage in various forms of bullying and aggressive behaviors (e.g., name calling, indirect bullying and violent behaviors) (Jolliffe & Farrington, 2011). Meanwhile, children and adolescents who are more aggressive and less prosocial usually lacks perspective taking and emotional empathy (Carlo, Mestre, Samper, Tur, & Armenta, 2010b). Previous work connecting parental attachment, perspective-taking, and aggression demonstrates that adolescents' attachment security with parents was positively related with perspective taking, and both were negatively related with adolescents' aggressive tendencies (Li et al., 2015). Moreover, higher attachment avoidance predicted lower levels of perspective taking, which in turn predicted less altruistic behavior (Pan, Liang, & Shek, 2022). However, controversy remains in the literature regarding the relation between perspective taking and aggression. For instance, some studies revealed a lack of association between aggression and perspective taking in adolescents (Jolliffe & Farrington, 2006, 2011). Batanova and Loukas (2011) found that perspective taking predicted increased relational aggression one year later. Researchers indicated that, in order to maintain or enhance social status and dominance, perspective-taking skills could

be used for aggressive behaviors (Cillessen & Borch, 2006; Jolliffe & Farrington, 2006). Considering these mixed findings, the relationship between perspective taking and aggression should be further clarified.

Reviewing the existing literature, few studies explore the link of parental attachment with proactive and reactive aggression. Furthermore, no research has directly investigated the role of self-control and perspective taking underlying these associations. Thus, the present study aimed to examine the role of self-control and perspective taking in the associations of parental attachment with proactive and reactive aggression. Based on the reviewed theoretical and empirical research, the present study proposed that self-control and perspective taking could play a mediating role in the association of parental attachment with proactive and reactive aggression in adolescence.

## **2. Methods**

### **2.1. Participants and Procedure**

In this study, a cluster sampling method was used to recruit participants from several high schools in Henan and Hubei Province located in the central regions of China. Demographic characteristics were also collected: age, gender, family economic incomes (1 = below than 1,000 ¥; 2 = 1,001~3,000 ¥; 3 = 3,001~5,000 ¥; 4 = 5,000~10,000 ¥; 5 = 10,001~20,000 ¥; 6 = above than 20,000 ¥), residence (i.e., rural or urban area), and parent education (1 = primary school and below; 2 = middle school; 3 = high school

degree and special school degree; 4 = undergraduate degree; 5 = graduate degree and above). A total of 2982 participants ( $M_{\text{age}} = 17.28$ ,  $SD = 0.83$ , range 15~20 years; 1602 girls, 1380 boys;  $\text{Ratio}_{15\sim 16 \text{ years}} = 16.4\%$ ,  $\text{Ratio}_{17\sim 18 \text{ years}} = 76.8\%$ ,  $\text{Ratio}_{19\sim 20 \text{ years}} = 6.7\%$ ) were included in the final analysis. All participants completed an informed consent document and were offered an honorarium. Ethical approval of this study was granted by the Ethics Committee of Central China Normal University.

## **2.2. Measurements**

*Parental attachment* was measured using the Inventory of Parent and Peer Attachment (36-item, Armsden & Greenberg, 1987), which includes the cognitive-affective dimensions of trust in parent and peer, and accessibility and responsiveness. Two subscales (mother and father attachment, each containing 12 items) were used to assess three key aspects of attachment: trust (e.g., “My mother/father accepts me as I am”), communication (e.g., “My mother/father helps me to understand myself better”), and alienation (e.g., “I don’t get much attention from my father/mother”, reversed). Participants were asked to rate their agreement on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). Previous research has supported the reliability and validity of the Chinese version of this inventory (Li, Delvecchio, Miconi, Salcuni, & Di Riso, 2014; Teng, Griffiths, Nie, Xiang, & Guo, 2020). In the present study, Cronbach’s alpha for mother attachment and father attachment was 0.85 and 0.86, respectively.



*Proactive aggression and reactive aggression* were assessed using a well-validated proactive-reactive aggression questionnaire (Raine et al., 2006), which consists of 23 items. Specifically, 11 items assessed reactive aggression (e.g., “Reacted angrily when provoked by others”), and 12 items assessed proactive aggression (e.g., “Hurt others to win a game”). All items were rated on a 3-point scale (0 = never, 1 = sometimes, and 2 = often), with higher scores indicating a higher level of aggression. Research has indicated that this questionnaire has good reliability and validity in Chinese children and adolescents (Fung, Raine, & Gao, 2009; Xu, Raine, Yu, & Krieg, 2014). In this study, Cronbach’s alpha was 0.85 for proactive aggression, 0.81 for reactive aggression, and 0.84 for total aggression.

*Self-control* measured with the Trait Self-Control Scale (Li, Xiang, Song, Huang, & Chen, 2021; Tangney, Baumeister, & Boone, 2004). Participants were asked to indicate the extent to which they agree with on 13 items (e.g. “I am good at resisting temptation”) with a 5-point Likert scale (1 = not at all like me, 5 = very much like me). Items were averaged so that higher scores indicated greater self-control ability. Cronbach’s alpha of this scale was 0.82 in the present study.

*Perspective taking* was measured using five items from the Interpersonal Reactivity Index (Davis, 1983). Respondents indicated the extent to which they agree with each item (e.g., “I sometimes try to understand my friends better by imagining how things look from their perspective”) on a 5-point Likert scale (1 = not at all like me, 5 = very much like

me), with higher scores indicating greater perspective taking. Items were averaged and higher scores reflect greater perspective taking. Previous research has supported the reliability and validity of this inventory in the context of Chinese culture (Li et al., 2015; Pan et al., 2022). Cronbach's alpha of this scale in this study was 0.81.

### **3. Results**

#### **3.1 Common Methods Bias Analysis**

To check and test common method bias, Harman's single-factor test using confirmatory factor analysis was conducted. A factor analysis on all items of the scales including parental attachment, self-control, perspectives taking, proactive aggression and reactive aggression was conducted, and a common factor from these items was extracted. The interpretation rate of the first factor was 16.77%, less than 40%, indicating that there was no common method bias in this study.

#### **3.2 Descriptive statistics and correlation Analysis**

Descriptive statistics for model variables were shown in Table 1. As predicted, Pearson correlation analysis showed that all interested variables were significantly associated with each other ( $ps < 0.01$ ). Specifically, parental attachment was positively correlated with self-control and perspectives taking, and negatively correlated with proactive aggression and reactive aggression. Moreover, higher levels of self-control and perspectives taking were associated with lower proactive and reactive aggression. It suggests that participants with securer attachment to mother and father are associated with higher

levels of self-control and perspectives taking, and show lower proactive and reactive aggression tendency.

**Table 1.** Descriptive statistics and correlations among variables ( $N = 2982$ )

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
Mother attachment	3.72	0.63	-					
Father attachment	3.66	0.66	0.67**	-				
Self-control	2.69	0.57	0.32**	0.34**	-			
Perspectives taking	3.52	0.74	0.22**	0.20**	0.25**	-		
Proactive aggression	0.07	0.17	-0.19**	-0.18**	-0.11**	-0.14**	-	
Reactive aggression	0.60	0.33	-0.23**	-0.25**	-0.40**	-0.24**	0.37**	-

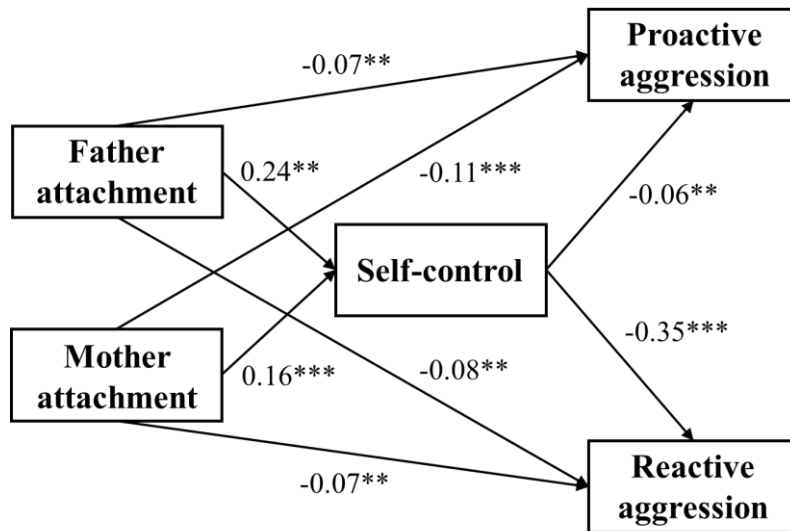
Note:  $N$  = number;  $SD$  = standard deviation. \*\* $p < 0.01$

### 3.2 Mediation Analysis

To determine the indirect effect of self-control and perspectives taking underlying the association between parental attachment and aggression outcomes, structural equation models were conducted using the M-plus 7.0. To this end, father attachment and mother attachment were regarded as the independent variable (X), self-control and perspectives taking were considered as the mediator variable (M), and proactive aggression and reactive aggression were separately considered as the independent variable (Y), with sex, age, income, residence, and parent education as covariates. The chi-square, comparative fit index (CFI), Tucker-Lewis Index (TLI), root - mean - square error of approximation

(RMSEA), and standardized root - mean - square residual (SRMR) were used to evaluate the measurement model fit.

As portrayed in Figure 1, the structural equation model was established to examine the mediating effect of self-control with father/mother attachment as the predictors and proactive and reactive aggression as the outcomes. The model fit the data adequately,  $\chi^2_{(9)} = 70.77, p < 0.001$ ; CFI = 0.96; TLI = 0.92; RMSEA = 0.05, 90% [CI: 0.04, 0.06]; SRMR = 0.03. As predicted, mother attachment predicted proactive aggression (direct effect coefficient = -0.11, 95% CI [-0.157, -0.071]) and reactive aggression (direct effect coefficient = -0.07, 95% CI [-0.112, -0.016]) directly, and indirectly through self-control (indirect effect coefficient = -0.002, 95% CI [-0.004, -0.001] for proactive aggression; indirect effect coefficient = -0.029, 95% CI [-0.039, -0.019] for reactive aggression). Similarly, father attachment predicted proactive aggression (direct effect coefficient = -0.07, 95% CI [-0.113, -0.029]) and reactive aggression (direct effect coefficient = -0.08, 95% CI [-0.129, -0.036]), and indirectly through self-control (indirect effect coefficient = -0.003, 95% CI [-0.006, -0.001] for proactive aggression; indirect effect coefficient = -0.042, 95% CI [-0.052, -0.034] for reactive aggression).

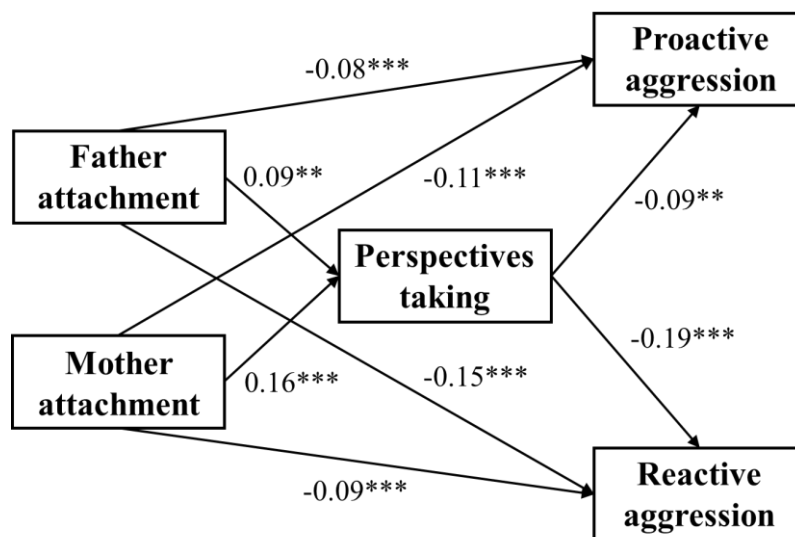


**Figure. 1** The model with standardized estimates is presented. \*\* $p < 0.01$ ;

\*\*\* $p < 0.001$ .

A second structural equation model was established to examine the mediating effect of perspective taking with father/mother attachment as the predictors and proactive and reactive aggression as the outcomes (Figure 2). The model fit the data adequately,  $\chi^2_{(9)} = 63.72, p < 0.001$ ; CFI = 0.95; TLI = 0.90; RMSEA = 0.04, 90% [CI: 0.04, 0.06]; SRMR = 0.03. As hypothesized, mother attachment predicted proactive aggression (direct effect coefficient = -0.11, 95% CI [-0.153, -0.068]) and reactive aggression (direct effect coefficient = -0.09, 95% CI [-0.139, -0.043]) directly, and indirectly through perspective taking (indirect effect coefficient = -0.004, 95% CI [-0.006, -0.002] for proactive aggression; indirect effect coefficient = -0.016, 95% CI [-0.022, -0.010] for reactive aggression). Meanwhile, father attachment predicted proactive aggression (direct effect

coefficient = -0.08, 95% CI [-0.116, -0.036]) and reactive aggression (direct effect coefficient = -0.15, 95% CI [-0.196, -0.105]) directly, and indirectly through perspective taking (indirect effect coefficient = -0.002, 95% CI [-0.004, -0.001] for proactive aggression; indirect effect coefficient = -0.009, 95% CI [-0.015, -0.003] for reactive aggression).



**Figure. 2** The model with standardized estimates is presented. \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

#### 4. Discussion

The present study investigated the associations of parental attachment with proactive and reactive aggression and further revealed the mediating role of self-control and perspective taking in Chinese adolescents. Results showed that higher attachment security in

adolescents was associated with lower proactive and reactive aggression. Meanwhile, both self-control and perspective taking were positively correlated with parental attachment and negatively correlated with two types of aggression. Moreover, parental attachment not only directly predicted proactive and reactive aggression, but also indirectly through self-control and perspective taking. Overall, the present findings contribute to a more comprehensive understanding of the interconnections among these factors and suggest that secure attachment with parents may decrease adolescents' different types of aggression through promoting self-control and perspective taking.

Theoretically, the present finding showed that attachment security could inhibit aggressive tendencies, which is in accordance with attachment theory, which proposes that individuals who have positive relationships with parents tend to develop secure working models and show healthy interpersonal interaction with peers and partners (Lopez & Brennan, 2000; Michiels et al., 2008). Converging evidence has indicated that securely attached adolescents show less conflict with family and peers and make a more successful transition to high school than insecurely attached adolescents (Ducharme, Doyle, & Markiewicz, 2002; Duchesne, Ratelle, Poitras, & Drouin, 2009; Laible, 2007). More specifically, studies have revealed that adolescent who had a secure attachment were lower in aggressive behaviors compared to those who had an insecure attachment (Bonab & Koohsar, 2011; Grych & Kinsfogel, 2010; Hare et al., 2009; Savage, 2014).

These findings suggest that attachment security may act as a protective factor for adolescents' development of social adaptation and interpersonal relationship.

Contributing to the existing literature on the association of attachment security and aggression, the present study further revealed that self-control and perspective taking could account for the link of parental attachment with proactive and reactive aggression.

The mediating effect of self-control is in accordance with the self-control theory, which suggests that effective parenting fosters adolescents' self-control ability (Altenburger & Schoppe-Sullivan, 2021; Burt et al., 2006; Gottfredson & Hirschi, 1990; Susic-Vasic et al., 2017; Valcan et al., 2018), which then contribute to lower aggressive tendency (Denson et al., 2012; DeWall et al., 2011). Empirical studies also indicate that caring and warm family relationships are beneficial to self-regulation behaviors among adolescents (Farley & Kim-Spoon, 2014; Li et al., 2019; Moilanen et al., 2010), which in turn are associated with fewer rule-breaking behaviors (Sun et al., 2022).

On the other hand, the mediating role of perspective taking is in line with the attachment theory, which proposes that the quality of the parent-child relationship shapes individual's social development (Lopez & Brennan, 2000; Michiels et al., 2008). Empirically, individual having a secure attachment with parents might be inclined to exhibit greater perspective-taking and empathic concern than their counterparts (Henschel et al., 2020; Joireman et al., 2002; Laghi et al., 2009). Although findings on the association between perspective taking and aggression were mixed (Batanova & Loukas, 2011; Jolliffe &



Farrington, 2006), accumulating evidence suggests that understanding the viewpoint of others facilitates prosocial actions and mitigate aggressive behaviors (Carlo et al., 2010a; Li et al., 2015; Song et al., 2018; Tamnes et al., 2018; van Hazebroek, Olthof, & Goossens, 2017). Conversely, children and adolescents lacking in perspective taking are associated with callous-unemotional traits and aggressive behaviors (Carlo et al., 2010b; Pan et al., 2022; van der Zouwen, Hovee, Hendriks, Asscher, & Stams, 2018). Based on existing evidence, self-control and perspective taking may be important psychological mechanisms underlying the associations of parental attachment with proactive and reactive aggression, that is, attachment security can promote adolescents' self-regulation and perspective taking, which further contribute to mitigating aggression.

Several limitations in this study should be acknowledged. First, participants recruited from Chinese high school students (i.e., two provinces located in the central regions) may restrict the generalizability of the present findings. Future research should assess this finding in various samples across various ages and countries with different cultural backgrounds. Second, cross-sectional design and measurement limitations (i.e., self-report) used in this study are difficult to determine the causal association among variables. Multiple measurements and designs with ecological validity and predictive effect, such as third-party reports (e.g., parents, teachers), experience sampling (e.g., daily diary), and longitudinal tracking should be considered in future research. Despite these shortcomings, the current findings have important implications for future research on

alleviating aggression by conducting intervention programs for fostering family education and relationship, as well as promoting adolescents' self-control and perspective taking.

### **Conclusions**

The present study investigated the relationship between parental attachment and proactive and reactive aggression and revealed the mediating role of self-control and perspective taking in Chinese adolescents. Attachment security not only directly predicted proactive and reactive aggression, but also indirectly predicted both types of aggression through self-control and perspective taking. This study contributes to a deeper understanding of the links between parental attachment and aggression by revealing its psychological mechanisms, and suggest that secure attachment with parents may decrease adolescent' s aggression through promoting self-control and perspective taking.

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### **Competing Interests**

The Authors declare that there is no conflict of interest.

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**GUIDELINES:  
ETHICAL GUIDELINES  
FOR PEER REVIEWERS**

**GUIDELINES**



VERSION 2: September 2017

## ETHICAL GUIDELINES FOR PEER REVIEWERS

### Summary

Peer reviewers play a role in ensuring the integrity of the scholarly record. The peer review process depends to a large extent on the trust and willing participation of the scholarly community and requires that everyone involved behaves responsibly and ethically. Peer reviewers play a central and critical part in the peer review process, but may come to the role without any guidance and be unaware of their ethical obligations. Journals have an obligation to provide transparent policies for peer review, and reviewers have an obligation to conduct reviews in an ethical and accountable manner. Clear communication between the journal and the reviewers is essential to facilitate consistent, fair and timely review. **COPE** has heard cases from its members related to peer review issues and bases these guidelines, in part, on the collective experience and wisdom of the **COPE** Forum participants. It is hoped they will provide helpful guidance to researchers, be a reference for editors and publishers in guiding their reviewers, and act as an educational resource for institutions in training their students and researchers.

Peer review, for the purposes of these guidelines, refers to reviews provided on manuscript submissions to journals, but can also include reviews for other platforms and apply to public commenting that can occur pre- or post-publication. Reviews of other materials such as preprints, grants, books, conference proceeding submissions, registered reports (pre-registered protocols), or data will have a similar underlying ethical framework, but the process will vary depending on the source material and the type of review requested. The model of peer review will also influence elements of the process.



## MODELS OF PEER REVIEW

There are different types or models of peer review, all of which have various advantages and disadvantages. See the COPE document **Who ‘owns’ peer reviews?’** (section titled ‘models of peer review’) (<https://doi.org/10.24318/rouP8ld4>) for an explanation of various peer review models. It is important to be aware of the model of peer review that the journal or platform uses before agreeing to undertake the peer review. The chart below, reproduced with permission from QUT, Australia, identifies key elements of the various models related to processes in peer review. Reviewers should understand their responsibilities related to confidentiality of the process and ownership of the review product based on the model of peer review being used.

There are many different models of peer review. A peer review process may operate to almost any combination in the following table by selecting one option from each row:

<b>Timing</b>	Preprints	Pre-publication	Post-publication
<b>Identifiability</b>	Double-anonymous	Single-anonymous	Open
<b>Mediation</b>	Editors mediate all interactions between reviewers and authors	Reviewers interact with one another openly	Reviewers and authors all interact with one another openly
<b>Publication</b>	Peer reviews are not published	Peer reviews are published but not signed	Peer reviews are published and signed
<b>Facilitation</b>	Review facilitated by a journal	Review facilitated by a third party	Review facilitated by authors
<b>Ownership</b>	Review owned by a journal or third party	Review owned by the authors of the reviews	Shared or mixed ownership of reviews

Using the chart above, a standard, anonymous, peer review process for a journal could be:



## BEING A REVIEWER

### Professional responsibility

Authors who have benefited from the peer review process should consider becoming peer reviewers as a part of their professional responsibilities. Some journals require a formal process of appointment to the review panel, and some require specific expertise; anyone interested in becoming a reviewer should look for the journal guidelines on peer review and follow any requirements posted. In order to assign appropriate reviewers, editors must match reviewers with the scope of the content in a manuscript to get the best reviews possible. Potential reviewers should provide journals with personal and professional information that is accurate and a fair representation of their expertise, including verifiable and accurate contact information. It is important to recognise that impersonation of another individual during the review process is considered serious misconduct (eg, see **COPE Case 12-12: Compromised peer review system in published papers**) (<https://COPE.onl/case-review-2>). When approached to review, agree to review only if you have the necessary expertise to assess the manuscript and can be unbiased in your assessment. It is better to identify clearly any gaps in your expertise when asked to review.

### Competing interests

Ensure you declare all potential competing, or conflicting, interests. If you are unsure about a potential competing interest that may prevent you from reviewing, do raise this. Competing interests may be personal, financial, intellectual, professional, political or religious in nature. If you are currently employed at the same institution as any of the authors or have been recent (eg, within the past 3 years) mentors, mentees, close collaborators or joint grant holders, you should not agree to review. In addition, you should not agree to review a manuscript just to gain sight of it with no intention of submitting a review, or agree to review a manuscript that is very similar to one you have in preparation or under consideration at another journal.

### Timeliness

It is courteous to respond to an invitation to peer review within a reasonable time frame, even if you cannot undertake the review. If you feel qualified to judge a particular manuscript, you should agree to review only if you are able to return a review within the proposed or mutually agreed time frame. Always inform the journal promptly if your circumstances change and you cannot fulfil your original agreement or if you require an extension. If you cannot review, it is helpful to make suggestions for alternative reviewers if relevant, based on their expertise and without any influence of personal considerations or any intention of the manuscript receiving a specific outcome (either positive or negative).

## CONDUCTING A REVIEW

### Initial steps

Read the manuscript, supplementary data files and ancillary material thoroughly (eg, reviewer instructions, required ethics and policy statements), getting back to the journal if anything is not clear and requesting any missing or incomplete items you need. Do not contact the authors directly without the permission of the journal. It is important to understand the scope of the review before commencing (ie, is a review of raw data expected?).

### Confidentiality

Respect the confidentiality of the peer review process and refrain from using information obtained during the peer review process for your own or another's advantage, or to disadvantage or discredit others (eg, see **COPE Case 14-06: Possible breach of reviewer confidentiality**) (<http://cope.onl/case-breach>). Do not involve anyone else in the review of a manuscript (including early career researchers you are mentoring), without first obtaining permission from the journal (eg, see **COPE Case 11-29: Reviewer asks trainee to review manuscript**) (<https://cope.onl/case-reviewer>). The names of any individuals who have helped with the review should be included so that they are associated with the manuscript in the journal's records and can also receive due recognition for their efforts.

### Bias and competing interests

It is important to remain unbiased by considerations related to the nationality, religious or political beliefs, gender or other characteristics of the authors, origins of a manuscript or by commercial considerations. If you discover a competing interest that might prevent you from providing a fair and unbiased review, notify the journal and seek advice (eg, see **COPE Case 15-05: Reviewer requests to be added as an author after publication**) (<https://cope.onl/case-author>). While waiting for a response, refrain from looking at the manuscript and associated material in case the request to review is rescinded. Similarly, notify the journal as soon as possible if you find you do not have the necessary expertise to assess the relevant aspects of a manuscript so as not to unduly delay the review process. In the case of double-anonymous review, if you suspect the identity of the author(s) notify the journal if this knowledge raises any potential competing or conflict of interest.

### Suspicion of ethics violations

If you come across any irregularities with respect to research and publication ethics do let the journal know (eg, see **COPE Case 02-11: Contacting research ethics committees with concerns over studies**) (<https://cope.onl/case-research>). For example, you may have concerns that misconduct occurred during either the research or the writing and submission of the manuscript, or you may notice substantial similarity between the manuscript and a concurrent submission to another journal or a published article. In the case of these or any other ethical concerns, contact the editor directly and do not attempt to investigate on your own. It is appropriate to cooperate, in confidence, with the journal, but not to personally investigate further unless the journal asks for additional information or advice.

## CONDUCTING A REVIEW (CONT.)

### Transferability of peer review

Publishers may have policies related to transferring peer reviews to other journals in the publisher's portfolio (sometimes referred to as portable or cascading peer review). Reviewers may be asked to give permission for the transfer of their reviews if that is journal policy. If a manuscript is rejected from one journal and submitted to another, and you are asked to review that same manuscript, you should be prepared to review the manuscript afresh as it may have changed between the two submissions and the journal's criteria for evaluation and acceptance may be different. In the interests of transparency and efficiency it may be appropriate to provide your original review for the new journal (with permission to do so from the original journal), explaining that you had reviewed the submission previously and noting any changes. (See discussion<sup>2</sup> with Pete Binfield and Elizabeth Moylan highlighting some of the issues surrounding portable peer review).

## PREPARING A REPORT

### Format

Follow journals' instructions for writing and posting the review. If a particular format or scoring rubric is required, use the tools supplied by the journal. Be objective and constructive in your review, providing feedback that will help the authors to improve their manuscript. For example, be specific in your critique, and provide supporting evidence with appropriate references to substantiate general statements, to help editors in their evaluation. Be professional and refrain from being hostile or inflammatory and from making libellous or derogatory personal comments or unfounded accusations (eg, see **COPE Case 08-13: Personal remarks within a post-publication literature forum**) (<https://cope.onl/case-remarks>).

### Appropriate feedback

Bear in mind that the editor requires a fair, honest, and unbiased assessment of the strengths and weaknesses of the manuscript. Most journals allow reviewers to provide confidential comments to the editor as well as comments to be read by the authors. The journal may also ask for a recommendation to accept/revise/reject; any recommendation should be congruent with the comments provided in the review. If you have not reviewed the whole manuscript, do indicate which aspects of the manuscript you have assessed. Ensure your comments and recommendations for the editor are consistent with your report for the authors; most feedback should be put in the report that the authors will see. Confidential comments to the editor should not be a place for denigration or false accusation, done in the knowledge that the authors will not see your comments.

## PREPARING A REPORT (CONT.)

### Language and style

Remember it is the authors' paper, so do not attempt to rewrite it to your own preferred style if it is basically sound and clear; suggestions for changes that improve clarity are, however, important. In addition, be aware of the sensitivities surrounding language issues that are due to the authors writing in a language that is not their first or most proficient language, and phrase the feedback appropriately and with due respect.

### Suggestions for further work

It is the job of the peer reviewer to comment on the quality and rigour of the work they receive. If the work is not clear because of missing analyses, the reviewer should comment and explain what additional analyses would clarify the work submitted. It is not the job of the reviewer to extend the work beyond its current scope. Be clear which (if any) suggested additional investigations are essential to support claims made in the manuscript under consideration and which will just strengthen or extend the work

### Accountability

Prepare the report by yourself, unless you have permission from the journal to involve another person. Refrain from making unfair negative comments or including unjustified criticisms of any competitors' work that is mentioned in the manuscript. Refrain from suggesting that authors include citations to your (or an associate's) work merely to increase citation counts or to enhance the visibility of your or your associate's work; suggestions must be based on valid academic or technological reasons. Do not intentionally prolong the review process, either by delaying the submission of your review or by requesting unnecessary additional information from the journal or author.

If you are the editor handling a manuscript and decide to provide a review of that manuscript yourself (perhaps if another reviewer could not return a report), do this transparently and not under the guise of an anonymous additional reviewer.

## WHAT TO CONSIDER AFTER PEER REVIEW

If possible, try to accommodate requests from journals to review revisions or resubmissions of manuscripts you have reviewed previously. It is helpful to respond promptly if contacted by a journal about matters related to your review and to provide the information required. Similarly, contact the journal if anything relevant comes to light after you have submitted your review that might affect your original feedback and recommendations. Continue to respect the confidential nature of the review process and do not reveal details of the manuscript after peer review unless you have permission from the author and the journal (eg, see **COPE Case 13-15: Online posting of confidential draft by peer reviewer**) (<https://COPE.onl/case-online>). See the **COPE discussion document Who ‘owns’ peer reviews?**<sup>1</sup> for a fuller discussion of the issues) (<https://doi.org/10.24318/rouP8ld4>).

## PEER REVIEW TRAINING AND MENTORING

Take advantage of opportunities to enrol in mentorship or training programmes to improve your peer review skills. Offer to mentor early career researchers as they learn the peer review process. Supervisors who wish to involve their students or junior researchers in peer review must request permission from the editor and abide by the editor’s decision. In cases where a student performs the review under the guidance of the supervisor, that should be noted and the student should be acknowledged as the reviewer of record. It may also be helpful to read the reviews from the other reviewers, if these are provided by the journal, to improve your own understanding of the topic and the reason for the editorial decision. Sense about Science have a helpful guide for peer review written for early career researchers.<sup>3</sup> There are also training courses available for those starting out in peer review, for example, Publons provide a free online training course.<sup>4</sup>

## FURTHER READING

1. COPE Council. Who 'owns' peer reviews? — English.  
<https://doi.org/10.24318/rouP8ld4> Version 2: September 2017.
2. Moylan E, Binfield P. Who 'owns' peer reviews podcast.  
<http://b.link/p-review> ↗
3. Sense about Science. Peer Review: the nuts and bolts.  
<http://b.link/sas-peer> ↗
4. Publons. Learn to peer review with confidence  
<http://b.link/publ> ↗

## AUTHOR CONTRIBUTIONS

### Conceptualisation:

Tara Hoke, Trevor Lane, Charon Pierson and Elizabeth Moylan revised the 2013 guidelines that were originally conceptualised and written by Irene Hames on behalf of COPE Council. All authors are listed in alphabetical order. We describe contributions to this project as follows:

### 2013 Version:

#### Conceptualisation:

Irene Hames

#### Writing:

Irene Hames

### 2017 Version:

#### Conceptualisation:

Elizabeth Moylan and Charon Pierson

#### Writing – original draft preparation:

Elizabeth Moylan and Charon Pierson

#### Writing – review and editing:

Tara Hoke, Trevor Lane, Elizabeth Moylan and Charon Pierson

#### Supervision:

Charon Pierson

#### Visualisation:

Elizabeth Moylan and Charon Pierson

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Links to other sites are provided for your convenience but COPE accepts no responsibility or liability for the content of those sites.

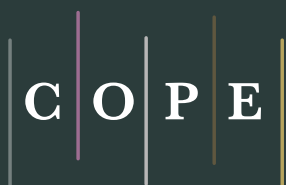
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