

# Exploring the Link Between Risk Attitudes and Fear of Failure in Adolescents: A Preliminary Study

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**Abstract:** *The study assesses the relation between individual risk attitudes and fear of failure. We measured risk attitudes using the risk attitude scale (Weber and Betz, 2002) and fear of failure using the Performance Failure Appraisal Inventory (Conroy et al., 2002). 51 students of ages 14 - 18 years took part in the survey where they completed these two questionnaires with slight modifications. The individual scores were averaged and Cronbach's alpha test was employed to test internal reliability. Pearson's correlation and linear regression analysis was done keeping fear of failure as the independent variable. The questionnaires had good internal reliability. The correlation and regression analysis both indicated a moderate positive relation but the p - values were higher than the standard 0.05 so the relation was not considered statistically significant. The findings motivate us to conduct further research on the topic with a larger sample size to explore the relation more deeply which is imperative to human decision making.*

**Keywords:** decision making; risk attitudes; fear of failure; risky choices; risk behavior; atychiphobia; risky decisions; risk averse; risk propense; risk

## 1. Introduction

We often find ourselves in a dilemma struggling to make decisions. Be it choosing an expensive car that might affect your finances to a cheaper counterpart that would hurt your social prestige or deciding the cover of your health insurance, each of these decisions compel you to undertake some degree of risk. Whether or not you opt for these risks is your personal preference. Every phase of a person's life is marked with a number of risky choices in different spheres. An individual has to make a choice between two or more substitutes. Such choices are largely dictated by the risk attitude of an individual. Thus, risk taking behavior of an individual is an imperative constituent of his or her life. Risk attitudes can be further bifurcated into risk aversion and risk propensity. Interestingly, there is no universal definition of the term 'risk', different researchers have used it differently to suit their needs. In our research we understand 'risk' as "the likelihood of harm or hazard to one's physical self, financial condition, or social prestige due to his or her choices or actions" Risk attitudes can be further bifurcated into risk aversion and risk propensity. While risk aversion is the inclination towards avoiding any risk, risk propensity is the inclination towards taking risks.

Economists have made several attempts at measuring the risk attitudes of an individual. Past theories analyzing the risky choices include expected value theory, expected utility theory, prospect theory and regret theory. All of these theories have one thing in common, they all originated in the financial domain. In other words, they primarily focus on the financial aspect of risk (loss and gain in monetary terms). Argumentatively, the financial aspect is just one side of an individual's risk behavior. We are met with risky choices in social situations too. A person can be very cautious in matters related to wealth. The same person, however, can be very confident while taking other risky decisions not involving money. Therefore, we measure risk attitudes of individuals in five specific domains namely financial, social, health, ethical and recreation. These methods are more precisely explained in the section 3.2 of this paper.

The other half of the research is concerned with fear of failure or atychiphobia which is the feeling of fear that is experienced upon failure. We all have experienced this while making tough decisions— What if things go wrong? What if I fail? For this research we understand fear of failure as "a fear or anxiety of not performing up to the expectations or standards set by oneself or others". It is generally seen as a negative emotion that has been known to hamper academic performance of students (Nsiah, 2017) along with leading to academic procrastination (Zarrin et al., 2020). Fear of failure has a significant impact on the decisions made by teens in academic settings. In the study conducted by Sumali Junuthula (2022), more than 95% of the respondents said that it resulted in stress. Fear of failure is, thus, an important determinant of academic success and demands more attention. Although we have measured the fear of failure of students, the questions used for doing so do not revolve around academic scenarios. That is to say, our respondents are all students but we have not elicited their fear of failure through questions that are focused on academics. Instead, the questions are general in nature so as to not limit the study in the academic setting. The effects of this fear extend beyond academics. It has been empirically proven to trigger anxiety levels in sports (Correia and Rosado, 2018).

If we think critically, we do experience the same emotion or fear while making risky decisions. To put it in another way, we experience fear of failure while making decisions because they involve a certain degree of risk but there is scarce knowledge about the relation between the two. The question whether fear of failure hampers our risky decisions is yet to be answered. Therefore, the core aim of this paper is to study the relation between risk attitudes and fear of failure.

## 2. Literature Review

### 2.1 Risk Attitudes

Risk attitudes, both domain specific and in general, have been researched thoroughly. Risk attitudes have been found to vary by age, gender, height and parental education. In the research paper presented in 2005, Thomas J. Dohmen and his associates conducted research measuring risk attitudes of

about 22,000 Germans in five specific domains - car driving, financial matters, sports and leisure, career, and health. The researchers concluded that “willingness to take risks is negatively related to age and being female and positively related to height and parental education.” In other words, (1) women are less willing to take risks than men (2) risk averse tendencies of both men and women increases with age (3) taller people are more willing to take risks (these inferences were ‘unconditional’ and could potentially have correlations with others factors for eg parental education) (4) individuals with higher parental education are generally more willing to take risks. Moreover, they found that although these factors have a similar impact on the risk attitudes of individuals, their magnitude differs across various contexts. Using the same data set, another research was conducted in 2010 by Dohmen and his colleagues ascertaining the impact of risk attitudes of individuals on their migratory tendencies. The study found statistically significant evidence that individuals who are more risk taking are more likely to migrate. Moreover, it makes two other contributions to the existing knowledge – suggesting that Risk attitudes are affected by age and gender, validating their previous findings.

Another study by Ingrid Rohde and Kirsten Rohde (2011) measured risk attitudes in a social context considering risks in the financial domain by using lotteries. They discuss how a person’s risk attitude is affected by the risk other’s face – “people’s risk attitudes are likely to depend on the payoffs and lotteries others face.” Interestingly, the study concluded that risk attitudes of an individual are less affected by the risk others face.

In 2016, researchers Zahra Murad, Martin Stefton and Chris Starmer studied the effects of risk attitudes on measured confidence. They considered the financial aspect of risk-taking behavior. They elicited confidence of the respondents through a non - incentivised self-report method and an incentivised inferred method. Their research found that individuals with more risk averse tendencies expressed lower confidence.

Interestingly, a study conducted in 2018 by researchers İsa Deveci and Furkan Aydın examined the relations between student’s *academic* risk-taking tendencies and their attitudes towards science. 680 students from grades fifth to eighth participated in the study. The main findings highlight a positive correlation between students’ academic risk - taking tendencies and their attitudes to science, with sub - factors like negative feelings after failure and preference for hard tasks also playing a role. Gender, grade level, and academic achievement were identified as influencing factors. Curiously, when academic risk - attitudes were examined by gender, female students showed more positive attitudes than male students.

Another research conducted by Eduart Villanueva and Izaias Martins in 2022 succeeded in finding the relation between Fear of Failure and *Risk Evaluation*. One of the aims of the study was to understand the link between risk evaluation and entrepreneurial intention, and subsequently measure how fear of failure would affect overall risk evaluation. The study found fear of failure to be positively and significantly related to risk evaluation, thereby concluding that participants

exhibiting a high fear of failure would consider risk evaluation more important. According to the researchers, “this can induce the individual to give greater importance to the risks than what really are there”. In other words, such individuals would be more cautious towards taking risks. Besides, this study measured fear of failure by asking respondents a simple question - whether or not fear of failure would affect their decision of starting a business. In contrast, our study elicits fear of failure of individuals by asking respondents multiple questions and determining their mindset using a five - point scale, all of which is explained later in section 3.2.

## 2.2 Fear of Failure

Fear of failure has been studied widely, particularly in the academic context. Multiple researches have been done involving students of both school and college level to understand fear of failure and its various effects. In 2017, researcher Hayford Nsiah investigated the impact of fear of failure, which was fueled by high parental expectations and perceptions of an uncertain socioeconomic future, on the academic performance of students from low - income families in Ghana. 230 students from two Ghanaian universities volunteered to participate in the study and were interviewed on an individual basis to elicit maximum information. The research found that fear of failure does hinder the students from performing well in their academic activities. However, low levels of fear of failure can also encourage students to achieve academic success. The findings are suggestive of the fact that fear of failure is a crucial factor affecting the academic performance of students belonging to the low-income families of developing countries.

Another study by Sohrab Zarrin and Esther Gracia in 2020 was aimed at predicting academic procrastination by fear of failure and self-regulation. We are only concerned with the relation between fear of failure and risk attitudes, however. In the words of researchers themselves, “academic procrastination is a problem behavior with negative consequences for students.” It affects the academic performance of students and thus requires attention. The research involved 198 students from different schools of University of Isfahan, Iran. The researchers made use of the Performance Failure Appraisal Inventory developed by Conroy et al. in 2002 to measure the fear of failure. We make use of the same instrument in our study as well. The researchers came to the conclusion that fear of failure is positively related to academic procrastination in university students. Their findings also indicated that fear of failure is indeed an important determinant of academic success affecting various aspects of a student’s behavior.

Fear of failure is often perceived as a negative emotion that is linked with feelings of shame. Atkinson, in 1957, identified shame to be the core emotion of fear of failure but provided no empirical evidence. Researchers McGregor and Elliot were the ones to “provide the first empirical support for the proposition that shame is the core emotion of fear of failure” in 2005. The study found that the individuals who had a higher fear of failure resulted in experiencing more shame than those who had a lower fear of failure. Later in 2022, researchers Ashley Kernann and Jeremiah Sullins established

a link between emotions of shame and risk-taking behaviors of individuals. The study involved 190 college students and all the respondents were asked to answer two questionnaires – one enquiring about their individual past risk behaviors and the other measuring guilt - proneness, shame - proneness, proneness to externalization, and proneness to unconcern. The study found that individuals who are less shame prone engaged in more risk-taking behaviors during their adolescence. Moreover, the study also studies gender differences in risk taking behaviors and concluded that males engaged in more risk-taking behaviors than females. These results are parallel to the results of studies conducted by Thomas Dohmen and his associates in 2005 and 2010.

### 2.3 The Gap

Risk attitudes have widely been studied in terms of specific domains like financial, social, health, recreational etc. and characteristics related to or factors affecting humans like age, gender, socio - economic background etc. There have been studies investigating the relation between risk attitudes and human feelings for instance confidence and overconfidence. Some researchers have also studied the influence of risk attitudes in academic settings. Fear of failure, too, is a broadly studied topic that has been studied alongside with other human emotions like shame. Extensive research has been done to study fear of failure, particularly, in teenagers. Numerous studies have inquired into fear of failure from an academic perspective. As evident from the studies discussed above, both of these are imperative components of one's decision-making process and hold a vital place in our day to day lives making it crucial for us to understand the relation between the two. Risk attitudes and fear of failure are both well researched topics but there is insubstantial knowledge about the relation between the two. It is important to note that an abstract by Rolf and Birney from the year 1967 titled "*The Effects of Fear of Failure on Risk - Taking and Performance*" examines this specific relation suggesting that as subjective failure became more intense the individuals took fewer and fewer risks. However, due to limited accessibility to the full text a detailed comparison is not possible. Moreover, our study renders discrete contributions by specifically measuring risk attitudes and fear of failure in teenagers using previously validated measures and then comparing the two variables to examine the relation. This paper makes an attempt to devise the relationship between risk attitudes of an individual and his or her fear of failure - whether or not they both are related and if related, then how and to what extent.

### 2.4 Hypothesis

As discussed before, McGregor and Elliot (2005) had previously validated shame to be the core cause of fear of failure and later Ashley and Jeremiah (2022) found that less shame prone individuals indulge in more risk-taking behaviors during their adolescence. We have also discussed the inference made by Eduart Villanueva and Izaias Martins (2022) that individuals with a high fear of failure are more cautious towards taking risks. All of these studies motivate us to hypothesize that individuals with less fear of failure will engage in more risk-taking behaviors.

## 3. Methodology

### 3.1 Participants

The study involved 51 voluntary participants out of which 28 (54.9%) were males and 23 (45.1%) were females. The students were enrolled in Seth M. R Jaipuria School, Lucknow at the time of the study and were from grades 10th, 11th and 12th. The ages of the participants ranged from 14 years to 18 years at the time of their response (Mean = 16.22, Median = 16, SD = 0.86). The respondents had variations in their subjects of study at school. Detailed information about the demographics of respondents is listed below in table 1

Table 1: Demographics

Age (years)		Grade		Gender	
	n		n		n
14	2	12th	31	Male	28
15	7	11th	12	Female	23
16	21	10th	8		
17	20				
18	1				
<b>Total</b>	<b>51</b>	<b>Total</b>	<b>51</b>	<b>Total</b>	<b>51</b>

### 3.2 Measures

*Risk attitudes* - Multiple researches have shown that risk attitudes are a domain specific characteristic meaning the same individual can show different degrees of risk proneness across different domains (Deck et al., 2014; Johnson et al., 2004; Weber and Betz., 2002). Subsequently, we adopted the domain specific risk attitude scale developed by Weber and Betz (2002) for our research. The scale was found to be reliable for measuring risk attitudes in the tests conducted by its developers. This scale also consists of 40 Likert scale-based questions which measure risk attitudes across 5 domains namely financial (investment and gambling), health/safety, social, recreational and ethical. The respondents are required to indicate their likelihood of engaging in each activity (e. g. "Betting a day's income at the horse races") on a scale of 1 (very unlikely) to 5 (very likely). The higher the point, the more risk - propense an individual would be. However, due to time constraints our survey did not contain all the 40 items as in the original questionnaire. We selected a total of 30 items out of which 3 were related to investment and gambling each, and 6 related to health, social, recreational and ethical domains each. For a few items, we have replaced certain terms with more appropriate words for better understanding of the respondents who were all students in our case. The following changes were made. The term 'annual income' used in the items related to investments was replaced with 'savings' as none of the participating students had an active income source. Using the word 'savings' would thus be more practical and would give a sense of possessiveness. The terms 'speculative' and 'conservative' were replaced with their less technical counterparts like 'volatile' and 'stable' respectively. and Consequently, Item 7 ("Investing 10% of your annual income in a moderate growth mutual fund") was rephrased as "Investing 10% of your savings in a moderate growth mutual fund", item 18 ("Investing 5% of your annual income in a very speculative stock.") was rephrased as "Investing 5% of your savings in a very volatile stock" and item 24 ("Investing 5% of your

annual income in a conservative stock.”) was rephrased as “Investing 5% of your savings in a relatively stable stock”. Lastly, item 28 (“Stealing an additional TV cable connection off the one you pay for.”) was rephrased to “Stealing somebody else’s OTT (Over - The - Top) subscription and continuing to use it.” This change was made because all of the respondents were involved in using OTT services more frequently than a TV cable connection.

*Fear of failure* - We measure the fear of failure of our respondents using the Performance Failure Appraisal Inventory (PFAI) developed by Conroy et al. (2002). The PFAI has been used by many for measuring fear of failure (Sohrab et al., 2020; Correia and Rosado, 2018) and its reliability has been validated by multiple researchers (Conroy et al., 2003a; Conroy and Meltzer 2003b; Sagar and Jowett, 2010; Henschel and Iffland, 2021). The PFAI is a collection of 25 Likert scale based questions which are to be answered on a scale of 1 (‘I believe this is never true of me’) to 5 (‘I believe this is true of me all the time’). The higher the point, the more is the level of fear of failure. It evaluates fear of failure by assessing (a) experiencing shame and embarrassment, (b) devaluing one’s self - estimate, (c) having an uncertain future, (d) important others losing interest, and (e) upsetting important others. Some of the original 25 questions were slightly modified by Conroy and Meltzer (2003) during their revision of the PFAI scale. We have used the modified version of the items which are as follows. In Item 12 (“When I am failing, I am not worried about it affecting my future plans.”), the word ‘not’ was omitted and it was asked to the respondents as, “When I am failing, I am worried about it affecting my future plans.” Item 16 (“When I am failing, I hate the fact that I am not in control of the outcome.”) was restructured as, “when I am failing, my lack of control over the outcome bothers me.”

3.3 Procedures

A single online survey was conducted which contained both the questionnaires - risk attitudes and fear of failure. The link to participate in the survey was sent to the respondents through social media. The participation was completely voluntary and optional and the participants were allowed to withdraw at any time. The participants were assured of the confidentiality of their responses and were assured that their data would be used for research purposes only. Their names were collected for record keeping purposes only. The research topic was not disclosed to the respondents to avoid any potential biases in their answers. There was no time limit to complete the survey. The respondents first attempted the questionnaire on risk attitudes and subsequently attempted the questionnaire assessing their fear of failure.

Once the survey was completed and data was compiled, we moved on to the data analysis. Firstly, we conducted a Cronbach’s alpha reliability test for both of the questionnaires (risk attitudes and fear of failure). Then, every individual’s score was averaged to ascertain his personal risk attitude and level of fear of failure. Subsequently, Pearson’s correlation coefficients were computed to find the relations risk attitude and fear of failure. The skewness and kurtosis values for our data were all between - 1 and +1 (table 2) which are suggestive of a normal distribution (Huck, 2012). The histogram assessing the normality of residuals (Figure 1) further supports our claim of normal distribution. Keeping in mind the normality of the distribution and assuming the relation between risk attitudes and fear of failure to be linear, the risk attitude scores were regressed on their fear of failure counterparts using simple linear regression.

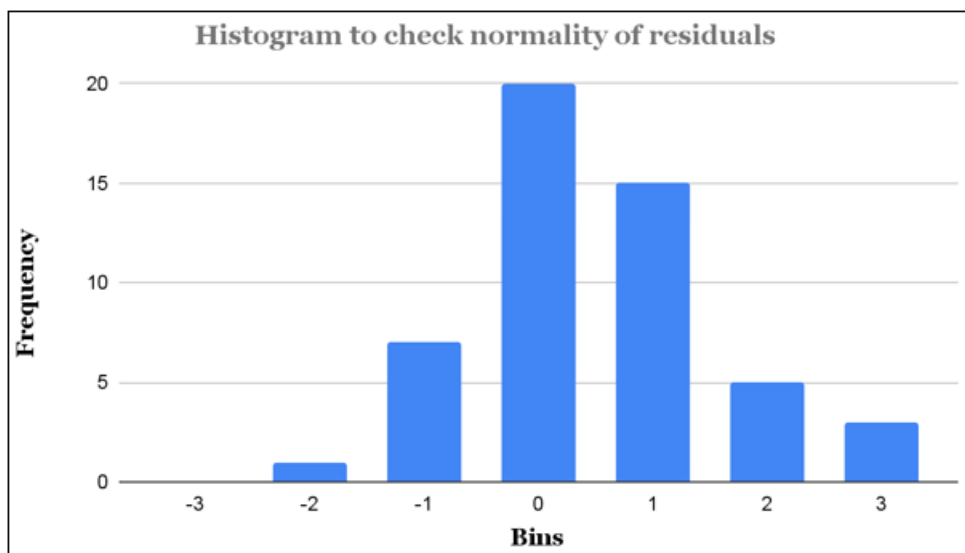


Figure 1: Histogram to check normality of residuals

Table 2: Skewness and Kurtosis

Measure	Average fear of failure score	Average risk score
Skewness	-0.198	0.499
Kurtosis	-0.645	0.258

4. Results and Discussion

*Cronbach’s alpha and Pearson’s correlation:* The Cronbach’s alpha test indicated a good degree of internal reliability for both of our scales, risk attitude ( $\alpha = 0.801$ ) and fear of failure ( $\alpha = 0.875$ ). These values provided enough grounds to move ahead with the analysis of our data. The

average fear of failure and risk attitude scores of all the respondents were 2.765 (SD = 0.929) and 2.902 (SD = 0.883) respectively. The average fear of failure score of the respondents was 2.765 (SD = 0.929), that is, leaning towards more fearful side in general. The average risk attitude score of all the respondents was 2.902 (SD = 0.883) which is suggestive of slight risk - propense tendencies. The next step was to perform correlation analysis on our data and to our surprise the Pearson's correlation coefficient indicated a moderately positive relation between risk attitude and fear of failure ( $r(51) = 0.258$ ). These initial values are contrasting to our hypotheses of a negative relation. More importantly, the  $p$  - value for the same was 0.067, which is greater than the conventional level of 0.05. This means that there is a high probability that we might deduce a positive relation from the correlation coefficient while there is no actual underlying relation between the variables that exists. Thus, these findings are of less statistical significance to deduce any relation. Moreover, the scatter plot in figure 2 further strengthens these results. The data points do not reflect a clear trend on any one side and a cluster is spread across the plot, suggesting little to no correspondence of our underlying variables with each other.

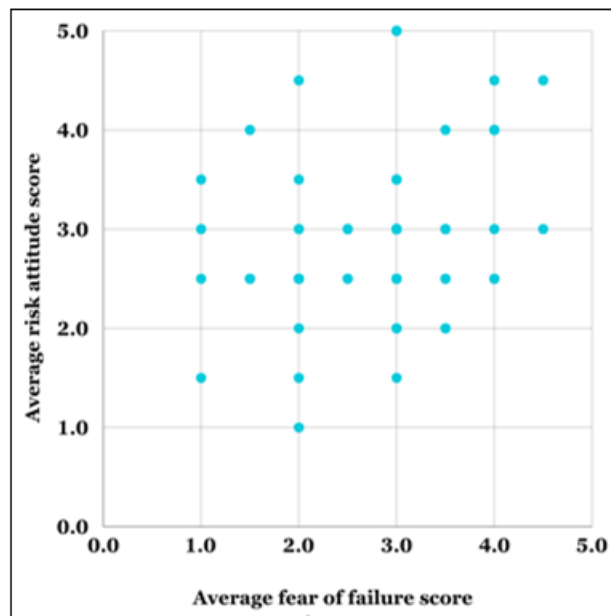


Figure 2: Scatter plot of average risk attitude score and average fear of failure score

Regression analysis: The regression analysis results are presented below in table 3. To reiterate, we have taken fear of failure as the independent variable and risk attitude as the dependent variable since we are studying the effects of fear of failure on risk attitudes.

Table 3: Regression Analysis Table

Observation	R	R square	Adjusted R square	Coefficient of independent variable (Fear of failure)	Standard Error	P - value	F
51	0.258	0.066	0.047	0.245	0.862	0.068	3.484

As evident from table 2, there is an insignificant relationship between risk attitudes and fear of failure since fear of failure can only predict for about 6.6% of the total variance in our dependent variable. The regression - coefficient ( $\beta$ ) came out to be 0.245, indicative of a moderately positive relation. However, once again the  $p$  - value (0.068) was higher than the standard level of 0.05 ( $F = 3.484$ ) suggesting that the regression model is not a good predictor of the dependent variable and the two of them are likely unrelated.

Both the Pearson's correlation and regression analysis are indicative of a positive relation between risk attitudes and fear of failure as opposed to our hypotheses but the high  $p$  - values in both the cases suggest that the two of them are unrelated. The limited sample size of the study is certainly its limitation and could potentially explain the higher  $p$  - values. However, the  $p$  - values in both the cases were not significantly higher than the threshold level and lingered close to it. These close figures might be indicative of the underlying relation between risk attitudes and fear of failure and must be explored further. The limited sample size of the study is certainly its limitation and could potentially explain the higher  $p$  - values. There is a possibility that our sample size was too small to discover any significant relation. For the same reason, analysis at subscale level was not considered logical and future studies with a larger sample can potentially explore the relationship between risk attitude and fear of failure at subscale levels as well. Another limitation of our study is the nature of respondents. The respondent group was very specific (students)

representing a very minute fraction of the human population and it was insufficient to provide a vivid picture of the society. In his 2010 research, E. U. Weber highlighted, "There is no single best way in which risk attitude can be assessed or risk taking predicted" (p.85). Future studies may employ different statistical measures and may yield different results. Keeping in mind the limitations of our study, future researchers should emphasize on exploring this relation in depth with a larger sample size and alternate statistical techniques.

### 5. Conclusion

Individual risk attitudes and fear of failure are an integral part of our lives. Every decision involves risk and every opportunity involves fear of failure. They both have been extensively researched in their own domains but there was scarcity of knowledge about their relation until this paper. The core aim of our research was to assess the relationship of individual risk attitudes and fear of failure. We hypothesized a negative relation between the two variables, however, our findings reflect something else. We found that there exists a weak positive relation between risk attitudes and fear of failure but due to the high  $p$  - values in correlation and linear regression analysis these results are not statistically significant and they seem to be unrelated. However, the near - threshold  $p$  - values hint at a complex relationship that demands further investigation. Not only does our research contribute to the existing literature regarding risk attitudes and fear of failure but also ventures into the intricate

relationship of the two. Our research will provide a basis and act as a reference point for further developments in this field. We have also stressed on the close association of one's risk behavior and his or her fear of failure, inviting other researchers to build upon our study. Future studies should focus on a larger sample size to reduce the margin of error and capture a broader perspective. Use of different or modified statistical techniques than the ones used here can help accomplish better and more refined results. We have added a new variable in the picture of how humans make risky choices and it is germane to the existing knowledge to conduct further research on the topic in order to ascertain its relation.

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