



# The Correlation Between Self-Expression and High-Risk Behaviors in Students

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Received 2023 August 22; Revised 2024 July 1; Accepted 2024 July 7.

## Abstract

**Background:** The increase in high-risk behaviors (HRBs) is recognized as a serious threat to the health of societies. Self-expression is one of the social skills that can have a positive effect on controlling some risky behaviors.

**Objectives:** This study aimed to investigate the correlation between self-expression and HRBs among newly arrived students at Isfahan University of Medical Sciences.

**Methods:** In this cross-sectional study, 402 students (166 males and 236 females) were recruited from Isfahan University of Medical Sciences in 2020. They were selected using a multi-stage random sample and answered questions from the self-expression questionnaire and the high-risk behavior questionnaire. Various statistical indicators were utilized, such as mean, standard deviation (SD), *t*-test for comparison between the two gender groups, ANOVA for the mean difference between three age groups, and a Pearson correlation matrix to examine the correlations between all components of HRBs. Additionally, the Pearson test and regression analysis were employed.

**Results:** A significant negative correlation was found between the self-expression score and HRBs ( $r = -0.56$ ,  $P < 0.001$ ). The mean score of HRBs was  $15.33 \pm 18.047$ . The mean score of self-expressions in male students was significantly lower than that of female students ( $74.51 \pm 16.33$  vs.  $80.36 \pm 14.30$ ). The most common HRBs were related to smoking, hookah use (mean =  $7.53 \pm 8.75$ ), and suicidal ideation (mean =  $3.11 \pm 3.93$ ).

**Conclusions:** It accentuates the significance of incorporating self-expression interventions in educational and health programs to foster healthier behaviors and promote mental health among this vulnerable population. Further research is warranted to explore additional factors influencing the link between self-expression and HRBs among university students.

**Keywords:** Health Risk Behaviors, Students, Assertiveness

## 1. Background

Today, serious threats to the health of adolescents primarily arise from high-risk behaviors (HRBs) and their associated adverse consequences. Identifying factors related to HRBs in adolescents is crucial for developing effective prevention strategies. The transition from adolescence to young adulthood is marked by milestones such as being accepted into university. One characteristic of this period is the attainment of newfound independence, which influences students to feel a greater sense of autonomy in their lifestyles and behaviors. Many tend to exhibit a

stronger inclination towards unhealthy behaviors and high-risk lifestyles (1-3).

Admission to university is one of the most important stages of change in life, exposing individuals to a new environment. These changes lead to increased behavioral problems, including stress, compromise, and HRBs. The general concept of HRB includes a range of behaviors that not only cause serious harm to individuals and their loved ones but also cause unwanted harm to other innocent people. The most common HRBs include aggression, excessive consumption of alcoholic beverages, drug abuse, high-

risk sexual behavior, reckless driving, school truancy, high-risk sports, gambling, and illegal activity (4). These behaviors are increasing exponentially around the world, despite the actions taken over the last three decades. The prevalence of HRBs is one of the most severe threats to youths' mental health and well-being (3).

AIDS and infectious diseases (caused by sexual intercourse), increased mortality rates in the youth population, tobacco use disorder, pre-marital pregnancy, and reduced quality of life are among the consequences of HRBs among young people (5). There are different views on the causes of these behaviors. According to proposed theories, it can be concluded that individual factors (gender and age), social factors (family, health care, education, and society), biological factors (hormonal effects), personality factors (tendency to excitement), and environmental factors (geographical conditions and peer group) are among the factors studied and investigated to prevent HRBs and their negative consequences (6).

The youth period, often considered a challenging phase, is associated with an increased risk of engaging in HRBs. This may be due to the fact that young people tend to be more reckless and adventurous than other age groups during this period (7). Thus, this period is critical for developing and progressing high-risk and problematic behaviors (8). This vulnerability is due to psychological and evolutionary factors that drive the emergence of various HRBs. In this period, HRBs are serious factors that threaten people's health. In recent years, rapid social changes have brought these behaviors to the attention of health organizations, law enforcers, and social policymakers as one of the most critical issues in society (9). The role of cognitive and emotional variables in driving teenagers and young people toward such behaviors is now fairly clear. Many factors are involved in youth mental health, and self-expression is one of them.

Self-expression is central to interpersonal behavior and human relationships. It is a basic social skill that plays a crucial role in establishing and maintaining interpersonal connections and can positively affect mutual relationships and create self-confidence (10). In other words, self-expression refers to the capacity to express one's feelings, opinions, and needs honestly, directly, and clearly. It also includes the ability to stand up for oneself and to refuse or "say no" when needed (11).

Self-expression has both positive and negative aspects, both necessary for successful social interaction. It leads to expressing thoughts and feelings and

showing appropriate responses in interpersonal relationships (12). The results of a study on people aged 21 to 28 in England showed that alcohol consumption reduces self-expression skills (13). Additionally, a study among 143 adults in New York demonstrated that a lack of self-expression and difficulty in expressing emotions (such as love, happiness, sadness, and anger) had a direct relationship with suicidal thoughts and depression (14). A study conducted to predict the tendency toward HRBs in 16- to 18-year-old females in Shiraz highlighted the role of differentiation and self-expression as influential factors in HRBs (15). Additionally, the results of another study on Iranian teenage females showed that individuals who lack the necessary skills to cope with emotional experiences and express their feelings are more likely to avoid unpleasant realities and attempt to alleviate negative emotions by engaging in HRBs (16). Furthermore, a study conducted on the students of Shahid Chamran University of Ahvaz found that the self-expression variable predicts 24% of changes in HRBs (17).

Most studies conducted in Iran refer to the prevalence of HRBs and have only examined one dimension of HRBs, such as smoking, alcohol use, suicide, or drug use, alongside different dimensions of mental health (18, 19). On the other hand, while social skills are generally discussed (20), the correlation between self-expression and HRBs has received less attention. Considering the necessity of investigating the factors affecting HRBs in young people—one of the main and influential groups in the future health of society—it is also important to pay attention to strategies to reduce HRBs in this age group.

## 2. Objectives

This study aimed to investigate the correlation between self-expression and HRBs among students at Isfahan University of Medical Sciences.

## 3. Methods

The present study was cross-sectional. The initial sample size was estimated to be 365 people based on the expected correlation coefficient of at least 0.2 (15). Considering a type I error of 0.01 and a type II error of 0.1, and accounting for the possibility of attrition, a sample of 400 participants was selected. The statistical population of this research consisted of all students studying at Isfahan University of Medical Science during the academic year of 2020 - 2021.

$$n = \left( \frac{z_{1-\frac{\alpha}{2}} + z_{1-\beta}}{0.5 \times \ln\left(\frac{1+r}{1-r}\right)} \right)^2 + 3 \quad (1)$$

### 3.1. Sampling Method

Sampling was performed using a multistage sampling method. Each faculty was considered a category, and the fields of each faculty were subcategories. According to the proportion of students in each faculty for the 2020 - 2021 academic year, classrooms were randomly selected and chosen as clusters. The inclusion criteria were being in the age group of 17 - 22, being a student at Isfahan University of Medical Sciences (2020 - 2021), being in the first year of university, and providing informed consent to participate in the research. Exclusion criteria included failure to fully complete both questionnaires and lack of proper cooperation in the study.

After coordinating with the university, obtaining permits, and meeting the inclusion criteria, the researchers communicated with the class representative and explained the purpose of the project. Due to the spread of COVID-19 and the possibility of students not being present in person, the questionnaire was distributed online using Google Forms. The questionnaire distribution period was from October 2021 to the end of December 2021. After explaining the study, obtaining informed consent, and emphasizing the confidentiality of the information, students completed the self-expression questionnaire and the HRB questionnaire

### 3.2. Information Gathering Tools

After explaining the details, obtaining the students' informed consent, and emphasizing the confidentiality of the information, (1) Gambrill and Ritchie's self-expression questionnaire (21) and (2) Mohammadkhani's HRBs questionnaire (22) were completed.

(1) Self-expression questionnaire of Gambrill and Ritchie: This questionnaire consists of 40 questions and measures two dimensions: (1) the degree or level of distress of the individual, and (2) the likelihood of engaging in risky behaviors. The questionnaire covers various areas: Rejecting a request, expressing personal limitations, starting a social interaction and expressing positive feelings, dealing with and accepting criticism, accepting differences with others, expressing oneself in sensitive situations, negative feedback.

The factor validity of various scale items ranged from 0.39 to 0.70 (21), and the reliability was reported to be 0.71 using the Cronbach's alpha method. Furthermore, the correlation of test scores with evaluations of individuals who had experienced the roles of examinees was 0.46 (23). The reliability coefficient of this test for the level of distress (the level and intensity of the individual's distress when faced with these situations) and for the likelihood of response (the likelihood of the situation occurring for the individual) was found to be 0.8 (24). In the Iranian population sample, the internal consistency of this questionnaire (Cronbach's alpha coefficient) was reported to be 0.70 for distress response and 0.83 for response probability (25). Additionally, the reliability of this questionnaire in a study with an Iranian sample was determined to be 0.82 after removing 18 items and aligning it with Iranian culture (26). Students responded to 22 questions according to a 5-option rating scale, with each item response having a score from 1 to 5. The total score range was between 22 and 110. The total score of the respondent was considered the level of assertiveness.

(2) high-risk behaviors questionnaire of Mohammadkhani: This questionnaire includes demographics and behaviors and assesses 7 behaviors, including smoking, alcohol consumption, psychoactive drug use, aggressive behavior, suicide, running away from home, and communication with the opposite sex. In addition, the questionnaire assesses the frequency of behavior during life, the last 12 months, and the last month, as well as the propensity to use various drugs in the future. A study reported a reliability of 0.83 using Cronbach's alpha (27). Its internal consistency coefficient was 0.87 based on Cronbach's alpha in Anbari and Mohammadkhani's research (28).

The scoring method of the questionnaire is in the form of Likert and self-assessment, with the scale measuring the questions from "not at all or never" = 0 to higher options, with higher scores indicating a higher propensity for HRBs. In general, the score of HRBs ranged from 0 to 372. The specific areas covered are: Physical conflict (0 - 28), running away from home (0 - 14), premarital sex (0 - 23), suicidal ideation (0 - 12), smoking and hookah (0 - 54), alcoholic drinks (0 - 21), drugs and psychedelics (0 - 200). Since this questionnaire has been used in many studies and has relatively good validity and reliability, the CVR and CVI were calculated. The questionnaires were distributed among 10 professors at Isfahan University of Medical Sciences, who assessed the necessity, transparency, simplicity, and relevance of the questionnaires. The CVR and CVI values were 0.7 and 0.8, respectively, for the self-

expression questionnaire and 0.8 and 0.8 for the high-risk behavior questionnaire.

### 3.3. Ethical Considerations

The study was approved by the Ethics Committee of Isfahan University of Medical Sciences (code: [IR.MUI.RESEARCH.REC.1399.807](https://doi.org/10.2196/IR.MUI.RESEARCH.REC.1399.807)). The link to the questionnaires was then sent to the class representatives, who distributed it in their respective online class groups for students to complete and submit. Before completing the questionnaires, the study participants were given a comprehensive explanation of the study's objectives. All ethical considerations were mentioned at the beginning of the questionnaires, and the corresponding consent form was obtained.

### 3.4. Data Analysis Method

To describe the quantitative data, indicators such as mean, standard deviation (SD), and percentage were used. A *t*-test was employed for comparison between the two gender groups, and analysis of variance (ANOVA) was used to investigate the mean differences between the three age groups. Additionally, the correlation matrix between all components of HRBs was examined. The Pearson test was also calculated to determine the correlation between assertiveness and HRBs.

In the regression analysis, HRB variables were considered dependent variables, while gender, age, and self-expression were considered independent variables. The prediction of HRBs was investigated using these variables. The Levene test was also used to check the homogeneity of variances. Analyses were performed using SPSS version 24 (SPSS Inc, Chicago, IL, USA) with a significance level of 0.05.

## 4. Results

A total of 402 students participated in this study from October 2021 to the end of December 2021. They included 236 (58.7%) females and 166 (41.3%) males. The age group with the highest frequency of students was 19 - 20 years (66.4%). The mean score of the total components of HRBs was  $15.33 \pm 18.047$  (minimum 0 in 51 persons and maximum 209 in one person). Among HRBs, smoking and hookah consumption and suicidal ideation had the highest mean scores ( $7.53 \pm 8.75$  and  $3.11 \pm 3.94$ , respectively). The lowest average score was related to running away from home (0.12). The mean score for self-expression was  $77.90 \pm 15.439$  (Table 1).

The mean of HRBs was higher among males than females. The mean and SD of self-expression scores were

$74.51 \pm 16.33$  for male students and  $80.36 \pm 14.30$  for female students. According to the *t*-test and P-value, the mean self-expression score was significantly lower in male students than in female students (Table 2).

The results of the ANOVA showed that the difference in the mean HRBs among the 3 age groups was significant ( $P = 0.04$ ). However, the difference in the mean self-expression among different ages was not significant ( $P = 0.79$ ). The mean HRBs score was higher between the ages of 16 - 18 than at other ages, while it was lower between the ages of 19 - 20 (Table 3). HRBs had a negative and significant correlation with self-expression ( $-0.56, P < .001$ ). All components of HRBs had a negative and significant correlation with self-expression ( $P < 0.001$ ). In other words, as self-expression increases, HRBs decrease. The following correlation coefficients were obtained for the respective HRBs: Physical conflict ( $r = -0.34$ ), running away from home ( $r = -0.265$ ), premarital sex ( $r = -0.44$ ), suicidal ideation ( $r = -0.19$ ), smoking and hookah ( $r = -0.55$ ), alcoholic drinks ( $r = -0.36$ ), and drugs and psychedelics ( $r = -0.28$ ). The highest correlation was related to the effect of self-expression on smoking, hookah consumption, and premarital sex.

All components of HRBs had a significant correlation with each other. The strongest correlations were observed between the following behaviors: Drugs and psychedelics consumption and physical conflict ( $r = 0.77$ ), running away from home and physical conflict ( $r = 0.77$ ), running away from home and drugs and psychedelics consumption ( $r = 0.74$ ), alcoholic drinks and physical conflict ( $r = 0.48$ ), alcoholic drinks and drugs and psychedelics consumption ( $r = 0.47$ ), and alcoholic drinks and smoking and hookah consumption ( $r = 0.47$ ). All of the correlations were statistically significant ( $P\text{-value} < 0.005$ ) (Table 4).

The results showed that as the self-expression score increases, the amount of HRBs decreases ( $\beta = -0.54$ ). Additionally, the age variable accounts for 6% of HRB changes. Overall, it was found that approximately 34% of the variability in HRBs can be attributed to various factors including age ( $P = 0.12$ ), gender ( $P < 0.001$ ), and self-expression ( $P < 0.001$ ) (Table 5).

## 5. Discussion

The findings of this research showed a significant inverse correlation between self-expression and the tendency toward HRBs. This result is consistent with a study conducted in 2013 on students of Ahvaz University of Medical Sciences (15) and a pilot study conducted in 2005 on educators to determine the impact of training on predicting HRBs (29). Therefore, self-expression, as

**Table 1.** Mean, and SD of High-Risk Behaviors and Self-Expression

HRBs	Mean $\pm$ SD
Physical conflict	0.81 $\pm$ 2.387
Running away from home	0.12 $\pm$ 0.481
Suicidal ideation	3.11 $\pm$ 3.934
Premarital sex	0.43 $\pm$ 1.047
Smoking and hookah consumption	7.53 $\pm$ 8.746
Alcoholic drinks	1.40 $\pm$ 2.621
Drugs and psychedelics	1.92 $\pm$ 6.161
Total HRBs	15.33 $\pm$ 18.047
Self-expression	77.90 $\pm$ 15.439

Abbreviation: HRBs, high-risk behaviors.

**Table 2.** Mean Difference of Self-Expression and High-Risk Behavior Components for Two Sex Groups

HRB Components	Mean Difference	Std. Error Difference	95% CI of the Difference		P-Value
			Lower	Upper	
Physical conflict	0.471	0.241	-0.002	0.944	0.051
Running away from home	0.140	0.048	0.045	0.235	0.004
Premarital sex	1.574	0.391	0.806	2.34	0.000
Suicidal ideation	0.120	0.107	-0.090	0.330	0.116
Smoking and hookah consumption	4.071	0.862	-2.377	5.765	0.000
Alcoholic drinks	0.557	0.264	0.038	1.076	0.0001
Drugs and psychedelics	1.520	0.619	0.303	2.737	0.014
Self-expression	-5.955	1.535	-8.972	-2.939	0.000

Abbreviation: HRB, high-risk behavior.

**Table 3.** Comparison of the Mean of Self-Expression Scores and High-Risk Behaviors Among Different Ages<sup>a</sup>

Variables	Age (y)			ANOVA	
	16 - 18	19 - 20	21 - 22	F	P-Value
Self-expression	74.80 $\pm$ 15.186	78.09 $\pm$ 14.936	77.74 $\pm$ 16.576	3.235	0.229
HRBs	22.50 $\pm$ 22.016	13.78 $\pm$ 18.066	18.06 $\pm$ 17.351	0.040	0.796

Abbreviations: HRBs, high-risk behaviors; ANOVA, analysis of variance.

<sup>a</sup>Values are expressed as mean  $\pm$  SD.

one of the protective factors against HRBs, plays a fundamental role in people's mental health. By acquiring and strengthening self-expression skills, it is possible to prevent the occurrence of HRBs in teenagers and young adults to some extent.

The results showed that the most common HRBs were related to smoking, hookah use, and suicidal ideation. In line with these results, many studies have shown that in both developed and developing countries, the prevalence of smoking among teenagers and young adults is increasing, and the age of onset is

decreasing (30). A significant portion of the Iranian population consists of teenagers and young adults. According to the 2015 census, more than 20 million people in Iran, equivalent to 25.1% of the overall population, are teenagers and young adults. Therefore, considering the young age structure of the population in Iran, teenagers and young people are one of the main demographic subgroups at risk (31).

In teenagers and young adults, especially students, the occurrence of HRBs is caused by several factors. Studies have discussed the roles of quality of life

**Table 4.** Correlation Coefficients Between the Components of High-Risk Behaviors <sup>a</sup>

Variables	Self-Expression	Physical Conflict	Running Away from Home	Premarital Sex	Suicidal Ideation	Smoking, Hookah Consumption	Alcoholic Drinks	Drugs and Psychedelic
Self-expression	1							
Physical conflict	-0.339	1						
Running away from home	-0.264	0.760	1					
Premarital sex	-0.432	0.333	0.259	1				
Suicidal ideation	-0.189	0.339	0.272	0.152	1			
Smoking and hookah consumption	-0.548	0.361	0.312	0.469	0.196	1		
Alcoholic drinks	-0.356	0.477	0.381	0.169	0.280	0.369	1	
Drugs and psychedelics	-0.276	0.769	0.736	0.265	0.244	0.269	0.470	1

<sup>a</sup>All the correlations in the table were P-value < 0.001 and were not included in the table.

**Table 5.** Prediction of High-Risk Behaviors Based on the Independent Variables

Variables	B <sup>a</sup>	Std. Error	Beta <sup>b</sup>	ANOVA	
				t	P-Value
(Constant)	66.868	5.414		12.351	0.000
Self-expression	-0.638	0.048	-0.546	-13.199	0.000
Sex	4.415	1.521	0.121	2.903	0.004
Age	2.257	1.461	0.063	1.545	0.123
<b>Model summary</b>					
Adjusted R square				0.338	
R				0.586	

Abbreviation: ANOVA, analysis of variance.

<sup>a</sup>Unstandardized Coefficients.

<sup>b</sup>Standardized Coefficients.

variables, religiosity, psychological well-being, general health, and mental health in committing HRBs (32). Considering that cognitive and emotional variables influence the tendency of teenagers and young people to engage in HRBs, self-expression—as a core aspect of interpersonal behavior and human relationships—is an effective factor in promoting mental health and reducing dangerous behavior among this age group. Individuals with lower levels of self-expression tend to have weaker self-esteem and self-concept, making it difficult for them to refuse unreasonable requests from others (33). Additionally, having higher levels of self-expression can be related to lower suicidal ideation. A 2022 study interviewed teenagers who had been hospitalized due to suicide attempts or suicidal thoughts and found that expressing oneself physically or virtually in society has positive effects, such as promoting social connections, providing social support, enhancing one's influence in society, and helping individuals maintain mental health and cope with

suicidal ideation. Talking with peers about shared interests can have a beneficial impact on mental health and reduce the risk of suicidal thoughts. Overall, the study highlights the importance of self-expression in promoting mental wellness and preventing suicide among teenagers (34).

Moreover, the prevalence of HRBs was found to be higher among males than females, possibly due to greater freedom of action, fewer restrictions, broader social networks, and higher sensitivity to uniformity among males. These findings are consistent with a 2021 study on 320 female teenagers in Shiraz, which aimed to identify predictors of HRBs (15). Some components of HRBs may be higher in girls. For example, a study conducted in the United States on young students found that HRBs such as attempted suicide and suicidal ideation were higher in girls (35). However, in general, it seems that educational and strategic programs to reduce HRBs in males should be implemented on a larger scale.

All components of HRBs were significantly correlated with each other. The strongest correlations were between drug and psychedelics use with physical conflict, running away from home with physical conflict, and running away from home with drug and psychedelics use. Additionally, alcoholic drinks had significant correlations with physical conflict, drug and psychedelics use, and smoking and hookah. All these correlations were statistically significant. According to this finding, it seems that the use of drugs and psychotropic substances can directly and strongly increase the possibility of physical conflict and running away from home. The results of a retrospective cohort study conducted on youth under 18 years of age to examine patients as sex traffickers indicated that there was a complex correlation between HRBs, indicating that most children who ran away from home had used drugs, and most children who used drugs were sexually abused (36).

One of the key strengths of this study is that it examined the correlation between self-expression and all aspects of HRBs, which has not been explored previously. While other areas of HRBs, such as smoking, have been investigated separately in studies, the simultaneous investigation of all HRBs will help health managers better understand which behaviors are most effective in enhancing self-expression.

### 5.1. Limitations

Although this research offers valuable insights, it is important to be cautious about generalizing the results due to the study's limitations. The study was limited to students at Isfahan University of Medical Sciences during 2019, which may affect the applicability of the results to other years, age groups, or student populations. Furthermore, according to previous studies, various variables can influence HRBs, such as age, sex, socio-economic status, mental disorders (including depression), etc. However, it was challenging to investigate all these factors, and it was not the primary purpose of the study. We included the effects of age and gender as background variables in the model and measured the impact of each.

Therefore, further research is needed to confirm the generalizability of these findings to different contexts. Additionally, since the current study was cross-sectional, we only examined the correlation at one point in time, and the variable temporality, which can strengthen the correlation, was not applied. Longitudinal studies are suggested to find a stronger and causal correlation.

### 5.2. Conclusions

The ability to express oneself is considered a protective factor against engaging in HRBs. Based on this finding and the growing importance of understanding predictors of HRBs, it is suggested that effective communication between children and parents should be established, and self-expression skills should be taught to students through classes and training courses during school. This approach can help prevent young individuals from engaging in HRBs and facing social threats when they enter university or other contexts.

It is also suggested to provide active virtual and face-to-face forums in universities through mass media so that the culture of self-expression is promoted and people can express their opinions and feelings more easily and without stress. Given the multifaceted nature of HRBs, it is essential for future studies to consider several factors that may contribute to their development, such as family dynamics, attachment styles, and social and economic class. Examining these additional factors can provide a more comprehensive understanding of the predisposing factors and develop effective prevention and intervention strategies.

Therefore, researchers should continue to explore these factors to gain deeper insights into the complex nature of HRBs.

### Acknowledgements

The authors are grateful to the Director of Isfahan University of Medical Sciences for his support and encouragement in conducting this study. The authors also extend their gratitude to the study participants for their willing cooperation. Additionally, the authors would like to sincerely appreciate the students for their close cooperation in this study.

### Footnotes

**Authors' Contribution:** Conceptualization, M. J. T., S. S.; data curation, S. S.; investigation, M. J. T., S. S., F. A.; methodology, M. J. T., S. S.; project administration, M. T.; resources, S. S.; software, F. A.; supervision, M. J. T.; validation, M. J. T., F. A.; visualization, F. A., S. S.; writing-original draft, F. A.; writing-review & editing, M. J. T., S. S., F. A.

**Conflict of Interests Statement:** The authors declare that they have no conflicts of interest.

**Data Availability:** The dataset presented in the study is available on request from the corresponding author during submission or after publication.

**Ethical Approval:** The ethical approval code is: [IR.MUI.RESEARCH.REC.1399.807](https://doi.org/10.1177/0146167214525474).

**Funding/Support:** Isfahan University of Medical Science supported this research.

**Informed Consent:** Written informed consent was obtained from all students.

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