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# History of psychic distress in children aged 2 to 4: possible effects on development and language

## Histórico de sofrimento psíquico em crianças de 2 a 4 anos: possíveis efeitos no desenvolvimento e na linguagem

## Historia del sufrimiento psíquico en niños de 2 a 4 años: posibles efectos en el desarrollo y el lenguaje

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***Abstract***

**Introduction:** The constitution of the psyche is fundamental to the linguistic constitution; therefore, psychological distress can hinder language acquisition. **Objective:** to analyze the frequency of a history of psychological distress in children aged 2 to 4 years and possible associations with sociodemographic, obstetric and child development variables**. Method**: 186 questionnaires with the variables investigated and the risk indicators instrument for development - Questionnaire (IRDIq) were sent to parents to answer online. **Results**: Of the 85 parents who answered the research instruments, a frequency of 45% of the history of psychological distress was observed in the sample studied. The analysis of sociodemographic, obstetric and development variables showed no statistical correlation with the history of psychological distress. Most subjects presented developmental milestones of language within the expected for the age group. **Conclusion:** Despite the high frequency of a history of psychological distress, the distress appears to have been overcome in large part of the sample studied, which may have had an impact on the presence of expected language development milestones in most of the sample.

**Keywords:** Child development; Language; Risk factors; Social determinants of health; Prematurity.

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**Authors' contributions:**
FNF: research design, data collection and analysis, writing of the article.
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## Resumo

**Introdução:** A constituição do psiquismo é fundamental à constituição linguística, deste modo, o sofrimento psíquico pode obstaculizar a aquisição da linguagem. **Objetivo**: analisar a frequência de histórico de sofrimento psíquico em crianças de 2 a 4 anos e possíveis associações com variáveis sociodemográficas, obstétricas e de desenvolvimento infantil. Método: Foram enviados 186 questionários com as variáveis investigadas e o instrumento de indicadores de risco ao desenvolvimento - Questionário (IRDIq) para os pais responderem no formato *on line*. **Resultados**: Dos 85 pais que responderam aos instrumentos de pesquisa, observou-se uma frequência de 45% de histórico de sofrimento psíquico na amostra estudada. A análise das variáveis sociodemográficas, obstétricas e do desenvolvimento não apresentou correlação estatística com o histórico de sofrimento psíquico. A maior parte dos sujeitos apresentou marcos evolutivos de linguagem dentro do esperado para a faixa etária. **Conclusão**: Apesar da alta frequência de histórico de sofrimento psíquico, parece ter havido superação do sofrimento em boa parte da amostra estudada, o que pode ter incidido sobre a presença de marcos evolutivos de linguagem esperados na maior parte da amostra.

**Palavras-chave:** Desenvolvimento infantil; Linguagem; Fatores de risco; Determinantes sociais de saúde; Prematuridade.

## Resumen

**Introducción**: La constitución de la psique es fundamental para la constitución lingüística, por lo tanto, el sufrimiento psíquico puede obstaculizar la adquisición del lenguaje. **Objetivo**: analizar la frecuencia de antecedentes de distrés psicológico en niños de 2 a 4 años y posibles asociaciones con variables sociodemográficas, obstétricas y de desarrollo infantil. **Método:** Se enviaron 186 cuestionarios con las variables investigadas y el instrumento indicador de riesgo de desarrollo – Cuestionario (IRDIq) para que los padres lo respondieran en línea. **Resultados**: De los 85 padres que respondieron los instrumentos de investigación, se observó una frecuencia de 45% de antecedentes de malestar psicológico en la muestra estudiada. El análisis de variables sociodemográficas, obstétricas y de desarrollo no mostró correlación estadística con el antecedente de malestar psicológico. La mayoría de los sujetos presentaron hitos de desarrollo del lenguaje dentro de lo esperado para su grupo de edad. **Conclusión:** A pesar de la alta frecuencia de antecedentes de malestar psicológico, éste parece haber sido superado en gran parte de la muestra estudiada, lo que puede haber incidido en la presencia de los hitos esperados del desarrollo del lenguaje en la mayoría de la muestra.

**Palabras clave:** Desarrollo infantile; Lenguaje; Factores de riesgo; Determinantes sociales de la salud; Prematurez.

## Introduction

The foundations of psychic structuring are established within the first three years of life and depend on bodily, affective, and symbolic relationships, which organize the baby for the creation of bonds with those who fulfill parental roles, whether maternal or paternal functions[1,2]. In addition to family members, in the modern world, schools encompass the field of the Other for babies and young children, which highlights the relevance of evaluating child development in this space, as research in the Brazilian context has already attested[3]. These studies demonstrate that it is possible to detect early signs of psychic suffering within the first year and a half of life, whether due to the baby's conditions—such as a structuring tendency toward autism—or in relation to the caregivers' ability to perform parental functions[1-3].

Various factors are considered either risk or protective factors for child development. Prematurity[4,5], especially extreme prematurity and low birth weight, is recognized as a significant risk factor at birth, not only due to biological conditions but also due to the increased risk of psychic suffering from exposure to pain and limitations that may arise in early interactions during hospitalization[6,7]. Protective factors for development may include family support in infant care, the mother having a professional occupation, and maternal age above 35 years[6,7].

Specifically concerning motor development, there is an established association between gross and fine motor delays and maternal gestational and obstetric history (planned pregnancy, type of delivery, number of prenatal consultations, medication use, and gestational complications), biological characteristics and risks of the baby (sex, mechanical ventilation, feeding difficulties), sociodemographic factors (maternal career and education level, number of children and household members), and psychosocial aspects related to routine family involvement and the presence of psychic suffering[8].

Furthermore, play, cognition, and language may be significantly affected by psychic suffering[9-12]. One study found that delays in language and cognition were associated with psychic suffering[9]. Schmitt et al.[10] evidenced a significant association between reduced maternal pleasure and engagement in play and a lower degree of infant pleasure with objects in the presence of psychic suffering. The creative use of objects emerged later in the group experiencing psychic suffering compared to the group without it. Regarding language, a clear association exists between psychic suffering and the emergence and maintenance of an enunciative position for the baby, either due to difficulties in the child occupying this role or due to parents struggling to sustain it[11,12].

Another aspect that may impact child development and has been extensively studied in modern times is screen exposure, especially during the pandemic. Girardello, Fantin, and Pereira[13], when discussing the controversies surrounding children's media use, highlight three key themes: adult mediation in children's screen use, the need to educate children on dealing with mass disinformation while emphasizing the critical dimension of media education, and the role of children's corporeality in a digitally dominated society.

In contemporary society, where young people and adults aged 12 to 35 spend an average of five hours daily on screens and exhibit ocular diseases, including keratoconus, smartphone addiction has become a public health concern[14]. Sacramento et al.[15] indicate that children aged two to nine are excessively exposed to screens (averaging 3.9 hours daily for the youngest group) and frequently consume meals or snacks while using devices. They emphasize that the pandemic exacerbated this situation but reinforced the necessity of educating families about limiting screen use, especially during meals, and monitoring screen content, as this exposure may influence eating habits and affect children's nutritional status and health.

Given these findings, this study aimed to assess screen use among young children aged two to four, considering the data from Sacramento et al.[15] and the fact that the children in this research were evaluated during the final phase of the COVID-19 pandemic.

Considering the aspects reviewed, this study aimed to analyze the frequency of a history of psychic suffering in children aged two to four from municipal schools in a small town in Rio Grande do Sul and its possible associations with sociodemographic, obstetric, and child development variables. The method section specifies the investigated variables.

## Method

This research was observational, analytical, and case control in nature, encompassing all children aged 2 to 4 years enrolled in early childhood education in a small municipality in Rio Grande do Sul.

The children's guardians were contacted via WhatsApp messages, email, phone calls, or in person to invite them to participate in the study. At that time, the informed consent form for parents was provided and read aloud, and the objectives and procedures of the research were explained. This project was approved by the institutional research ethics committee under opinion number CAAE: 52044121.6.00005346, following the guidelines outlined in Resolution No. 466 of the National Research Ethics Council (CONEP).

A total of 186 questionnaires were sent to guardians based on teacher recommendations, using an online format due to the pandemic period. Of these, 85 parents consented to participate and returned the requested data. Considering the prevalence of language disorders in the literature, a minimum sample of 38 children was calculated, considering the population of 2- to 4-year-old children in the studied municipality.

Two instruments were used: a semi-structured questionnaire developed by the researcher and the **Child Development Risk Indicators Questionnaire (IRDI-Q)**, validated for the Brazilian population by Machado et al.[16]. The IRDI-Q is a retrospective questionnaire based on clinical indicators of child development risk[1-3], answered by parents and shown to be capable of detecting psychic suffering, particularly related to autism.

The semi-structured questionnaire collected sociodemographic family data, including parental education and occupation, family income, parental age, household size, and housing conditions. It also included questions on obstetric history, gestational age, and Apgar scores at the first and fifth minutes of life. Regarding child development, parents were asked about developmental milestones such as play and language, as well as screen exposure time. These questions aimed to collect straightforward data that could be answered online, considering the pandemic restrictions, and to provide a profile of some variables identified by the research group as either risk or protective factors for child development.

The **IRDI-Q** consists of retrospective questions directed at parents to assess early mother-baby or caregiver interactions and determine whether there was a history of psychic risk in the first two years of life. This instrument is based on the adapted retrospective evaluation framework of the **IRDI protocol**[1]. It establishes key dimensions of psychic constitution (**subject assumption, demand establishment, alternation between presence and absence, and paternal function**) projected onto indicators that parents can read and report on or that an observer can inquire about when monitoring child development in the first 18 months of life.

The **IRDI-Q** was developed from the **Clinical Indicators of Child Development Risk** in the doctoral thesis of Machado et al.[16]. This instrument contains questions designed to retrospectively identify the presence or absence of risk indicators for child development. Responses are recorded on a five-point scale as follows: **Never** (4), **Rarely** (3), **Sometimes** (2), **Often** (1), **Always** (0).v Additionally, a "don't remember" option is included, which is not scored and is considered a non-response.

A cutoff score of **32.5 points or higher** is used to indicate psychic risk. Scores below this threshold suggest the absence of risk for **Autism Spectrum Disorder (ASD)**. In this study, a lower score was considered indicative of no significant history of psychic suffering, as the children were not assessed in person to confirm or rule out an ASD diagnosis, as was done in Machado's study[16].

The data were entered into **Excel tables** and subjected to **statistical analyses** using **R (R Core Team, 2024)**. To analyze the distribution of quantitative variables, normality was tested using the **Kolmogorov-Smirnov test**. The three obstetric outcome variables—**gestational age, Apgar scores at the 1st and 5th minutes**—did not meet the normality assumption ($p < 0.05$). Thus, the **Mann-Whitney non-parametric test** was used to compare the distribution of these characteristics between groups with and without a history of psychic suffering (HSP).

The variables analyzed in association with **psychic suffering history** were:

- **Sociodemographic variables**: family income, maternal and paternal education level, maternal and paternal occupation, number of children.
- **Obstetric variables**: Apgar scores, gestational age.

- **Developmental and language variables**: play behavior, babbling, onset of speech, onset of sentence production, and daily screen time.

## Results

Table 1 describes the main characteristics of the variables analyzed in the overall group, presenting the number of individuals (N) for each question, minimum and maximum values, mean, and standard deviation. Table 2 provides the characterization of the sample, considering the study group (with a history of psychological distress) and the control group (without a history of psychological distress).

**Table 1.** Characterization of Quantitative Variables in the General Group

| Variable | N | Minimum | Maximum | Average | stand. deviation |
|---|---|---|---|---|---|
| Child's age (years) | 85 | 2.0 | 4.7 | 3.6 | 0.6 |
| Gestational age (weeks) | 73 | 28. | 42.0 | 38.2 | 2.1 |
| Mother's age (years) | 84 | 19. | 61. | 30.1 | 8.0 |
| Father's age (years) | 81 | 19. | 57.0 | 32.6 | 7.9 |
| Family income | 83 | 800. | 8000. | 3254.8 | 1618.8 |
| Apgar 1º minute | 55 | 2.0 | 10.0 | 8.2 | 2.0 |
| Apgar 5º minute | 55 | 2.0 | 10.0 | 8.9 | 1.9 |
| Describe at what age you observed the child begin to babble sounds (months) | 78 | 1.0 | 15.0 | 5.2 | 2.6 |
| Describe when you observed that the child made the first words (months) | 81 | 4.0 | 24.0 | 9.71 | 4.1 |
| Describe when you observed that the child made the first sentences (months) | 73 | 7.0 | 42.0 | 17.2 | 7.5 |
| IRDI-Q | 85 | 10.0 | 61.0 | 32.9 | 9.6 |

It was observed that the average score obtained in the IRDI-Q was 32 points, which is high when considering the instrument's cutoff point. This indicates a significant number of children with a history of psychological distress in the studied sample, as shown in Table 2 (45.8%). The presence of prematurity was low in the sample, and the Apgar score was, on average, above eight points. Additionally, the means for language milestones were generally within the expected range for child development. It is possible that parents perceived protowords as first words, given that the average age for first words was 9.7 months.

**Table 2.** Characterization of the sample by group with or without history of psychological distress

| History of psychological distress | | | Yes | | |
|---|---|---|---|---|---|
| **Variable** | **N** | **Average** | **Deviation** | **Min** | **Max** |
| Child's age (years) | 39 | 3.5 | 0.6 | 2.1 | 4.5 |
| Gestational age (weeks) | 33 | 38,2 | 1.7 | 32.0 | 41.0 |
| mother's age (years) | 39 | 29.5 | 6.2 | 21.0 | 47.0 |
| Father's age (years) | 36 | 32,1 | 7.2 | 19.0 | 57.0 |
| Family income | 39 | 3110.3 | 1686.4 | 1200.00 | 8000.00 |
| Apgar 1º minute | 23 | 8.3 | 2.1 | 2.0 | 10.0 |
| Apgar 5º minute | 23 | 8.9 | 2.2 | 2.0 | 10.0 |
| average time of exposure to screens | 32 | 2.2 | 1.1 | 1.0 | 5.0 |
| onset of babbling (months) | 35 | 5,3 | 3.1 | 1.0 | 15.0 |
| onset of first words (months) | 37 | 9,8 | 4.5 | 4.0 | 24.0 |
| onset of sentences (months) | 32 | 18.4 | 8.2 | 7,0 | 36.0 |
| IRDI-Q | 39 | 40.9 | 6.7 | 32,0 | 61.0 |

| History of psychologial distress | | | No | | |
|---|---|---|---|---|---|
| **Variable** | **No** | **Average** | **Deviation** | **Min** | **Max** |
| Child's age (years) | 46 | 3.6 | 0.6 | 2.0 | 4.7 |
| Gestational age (weeks) | 40 | 38.2 | 2.5 | 28.0 | 42.0 |
| mother's age (years) | 45 | 30.6 | 9.3 | - | 61.0 |
| Father's age (years) | 45 | 32.9 | 8.5 | 20.0 | 56.0 |
| Family income | 44 | 3382.95 | 1564.65 | 800.00 | 7000.00 |
| Apgar 1º minute | 32 | 8.2 | 2.0 | 2.0 | 10.0 |
| Apgar 5º minute | 32 | 8.8 | 1.7 | 2.0 | 10.0 |
| average time of exposure to screens | 42 | 2.2 | 1.2 | 1.0 | 6.0 |
| onset of babbling (months) | 43 | 5.0 | 2.1 | 2.0 | 12.0 |
| onset of first words (months) | 44 | 9.6 | 3.9 | 4.0 | 24.0 |
| onset of sentences (months) | 41 | 16.3 | 7.0 | 8.0 | 42.0 |
| IRDI-Q | 46 | 26.0 | 5.4 | 10.0 | 31.0 |

Quantitative developmental characteristics, such as screen exposure time and language milestones (babbling, first words, and phrases), were tested using non-parametric methods (Mann-Whitney) due to the data distribution not meeting normality assumptions. Other developmental, sociodemographic, and obstetric variables were tested using Chi-square or Fisher's exact tests, depending on the empirical frequency distribution in each case. The exact significance levels (p-values) are summarized in Table 3.

**Table 3.** Analysis of association of History of Psychological Distress and other variables

| Character | Variable | p-valor |
|---|---|---|
| Sociodemographic | Maternal education | 0.97 |
| | Paternal eduction | 0.601 |
| | Has siblings | 0.422 |
| | Family income | 0.26 |
| Obstetric | Gestational age | 0.56 |
| | Apgar no 1º minute | 0.789 |
| | Apgar no 5º minute | 0.249 |
| Development | Have difficulty concentrating | 0.305 |
| | could not be listening | 0.919 |
| | difficulty with eye contact | 0.157 |
| | Responds when called by name | 0.459 |
| | Realize when the child is sad | 0.208 |
| | Plays make-believe | 0.438 |
| | Reacts when people approach | 0.093 |
| | Accompanies games | 0.329 |
| | Has difficulty with routine | 0.591 |
| | Problems with speech articulation | 0.999 |
| | Onset of babling* | 0.703 |
| | Onset of first words* | 0.856 |
| | Onset of first sentences* | 0.317 |
| | Avarage time of exposure to screens* | 0.95 |

*Mann-Whitney test, with the other tests being Chi-square or Fisher's exact.

Overall, the quantitative analysis results indicated no statistical association between the studied sociodemographic, obstetric, and developmental variables and the presence of a history of psychological distress in the sample. There was only a slight trend ($p < 0.10$) suggesting that some children exhibited difficulties in approaching other children and that household income was slightly higher in the group without a history of psychological distress.

## Discussion

The results showed that a large percentage of children (45.8%) had a history of psychological distress, yet no statistically significant associations were found between this condition and the studied sociodemographic, obstetric, and developmental variables.

These findings differ from the study by Roth-Hoogstraten et al.[6], which found that maternal age above 35 years and below 20 years were protective factors against psychological distress. When considering factors such as maternal and paternal education and family income, this study's results align with Roth-Hoogstraten et al.[6], who also found no significant statistical association. However, these findings contrast with Nunes et al.[17], who reported a weak but significant correlation between maternal education and cognitive and motor outcomes in children with a history of psychological distress at 24 months, assessed using the Bayley III Scale. Similarly, Bortagarai[8] found an association between maternal education and fine and gross motor development in children evaluated using the Denver II scale within the first two years of life.

It is important to note that in this study, children with psychological distress were more commonly found in the lower-income group, although the sample was relatively homogeneous in terms of education level, with most parents having completed high school. This homogeneity may have limited the ability to detect stronger sociodemographic associations.

Regarding the investigated obstetric factors (Apgar and gestational age), the results confirm the findings of Roth-Hoogstraten et al.[6,7], who also did not find a significant association between late preterm birth and developmental risk. The children in this study had an average gestational age of 38 weeks, meaning most were born at term, with very few cases of preterm birth, and primarily late preterm births. This suggests fewer risks associa-

ted with extreme prematurity, which is known to impact both development and psychological structuring[4,5]. Additionally, the average Apgar score was above eight points in both groups, indicating no significant impact of Apgar scores on the studied sample's development.

Regarding developmental variables, parents were asked about their children's play, interaction, and language. Questions covered babbling onset, first words, and first phrases, as well as concerns about articulation problems. The results showed no significant differences between the groups with and without a history of psychological distress. The average age for babbling (5.2 months), first words (9.7 months), and first phrases (17.4 months) were close to typical development expectations. However, the early average age for first words suggests that parents may have interpreted protowords as actual first words, which typically emerge in the second half of an infant's first year[18].

This study did not examine parent-child interactions from a dialogic perspective, which may explain the absence of significant differences in language development between groups. Other studies in the enunciative perspective have found distinctions in children with a history of psychological distress[9,11,12].

Play behavior reflects not only cognitive development but also psychological structuring[9,10]. The ability to engage in pretend play is a sign of higher symbolic elaboration. In this study, mothers were asked about their children's pretend play and general play habits. No significant differences were found in pretend play between children with and without a history of psychological distress. However, several mothers of children with psychological distress reported that their children tended to line up or throw toys, suggesting that their understanding of pretend play may have been limited.

Schmitt et al.[10] found a significant association between reduced maternal enjoyment and engagement in play, as well as lower child enjoyment of objects, in the presence of psychological distress (assessed using the IRDI scale). In that study, creative use of objects emerged later in the psychological distress group. The present study did not evaluate the quality of pretend play, which may explain the lack of differences between groups, diverging from Schmitt et al.[10]. However, the reports of toy lining and throwing behaviors, while not statistically significant, partially align with Schmitt's findings.

Another noteworthy aspect of the quantitative data is that children in this sample had an average daily screen time of two to four hours, similar to findings in other studies involving both children and adults[14,15]. This suggests that high screen exposure is a general characteristic of childhood today. However, further investigation is needed to understand how children interact with media—specifically, whether adult mediation is present[13]. Future studies should explore this factor more deeply, given the limitations of this study in collecting detailed data on media usage.

A major limitation of this study was the difficulty in conducting in-person evaluations due to COVID-19 restrictions. Unlike Schmitt et al.[10], who analyzed mother-child interactions through recorded videos, this study relied on parent-reported developmental milestones. Souza et al.[9] also analyzed linguistic and cognitive evolution in two infants with psychological distress—one with autism risk and one without—finding language and cognitive delays in both, with more pronounced delays in the autistic risk case. The IRDI[1-3] was more effective in differentiating psychological structuring trajectories than the M-CHAT in that study. These findings highlight that qualitative analyses of interaction may better capture developmental distinctions than broad milestone assessments, such as those used in this study.

Some intersubjectivity aspects, such as responding to one's name[19], making eye contact, accepting peer interaction, and responding to maternal calls[20], were also investigated but did not show significant statistical differences between groups. However, there was a trend toward significance ($p = 0.093$) suggesting that children with a history of psychological distress had slightly more difficulty in peer interactions. Overall, no strong psychopathological trends were identified based on these general signs.

Kupfer et al.[1] warn that the IRDI script is an instrument for assessing the baby's psychic constitution that seeks positive signs of development, that is, if they are present, development is going well. If the signs are absent, development may not be going well, therefore, it has no diagnostic value. The authors also emphasize that during the evolutionary process of the first 18 months, eventual difficulties can be overcome and compensated for through family changes, whether spontaneous

or through timely intervention. Thus, it can be hypothesized that the group investigated here, with a history of psychological distress, managed to reverse eventual conditions that hindered their development, which emerged during their first 18 months, given the absence of important statistical distinctions in relation to the group without a history of psychological distress.

In the adaptation that Machado et al.[16] performed of the IRDI to the IRDI-Questionnaire, it is important to highlight that the sample studied by the author compared children with typical development with children diagnosed with ASD by CARS, reaching a cohort point of 32.5 points. In this research, we used the point of 33 or more to define the presence of psychological distress, and 32 or less, the absence. In this research, it was observed that children with a history of psychological distress presented an average of 40.9 points in the IRDI-Q and that children without this history obtained a much lower average of 26.0. These results indicate the importance of continuing studies with the IRDI-Q with different samples, cases of ASD, cases of DLD, among others, for greater precision in relation to the cutoff point as well as greater knowledge about the behavior of the test in the face of different developmental outcomes. In this sense, a study conducted outside the pandemic phase, in which it is possible to assess the entire group of children in person, may allow for a better assessment of the performance of this instrument in future studies, better exploring its potential as a monitoring instrument for children in preschool. In addition, it is important to consider the limitations inherent in a retrospective questionnaire that depends on parental memory, although the questionnaire was proven to be sensitive and specific in the study by Machado et al.[16].

Finally, the possibility that language and developmental changes could have been identified in the sample of children with a history of psychological distress based on more detailed in-person assessments cannot be ruled out, since the collection of information about major developmental milestones was limited, although this was the possible step for this research, which was collected during the COVID-19 pandemic.

## Final considerations

This study analyzed the relationship between psychological distress, language acquisition, and child development in two to four-year-old children attending preschool in a small municipality in Rio Grande do Sul. While no significant associations were found between psychological distress history and the studied variables, a high frequency of psychological distress was identified (45.88%). This underscores the need for ongoing monitoring and deeper investigation into these children's development.

The findings suggest that the IRDI-Q is a promising preschool screening tool but requires further validation across different developmental conditions.

Finally, fostering a culture of detailed early childhood developmental monitoring is essential—not to pathologize children but to maximize their potential. For this to happen, educational teams need greater knowledge about psychological structuring, language acquisition, and developmental risk factors. The involvement of psychoanalytic and speech-language professionals in school assessments could be fundamental in ensuring effective support.

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