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## Understanding Pandu Roga: A traditional approach to anaemia management

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### Abstract

Pallor, or *Pandutva*, is one of the primary symptoms associated with skin tone and colour disorder. *Bhrajaka Roga*, as described in Ayurveda, is characterised by alterations in skin pigmentation, ranging from white (*Shweta*) to yellowish (*Peeta*) and greenish (*Harita*), classifying it as a "*Varnopalakshita Roga*," a condition marked by changes in colour. The Ayurvedic clinical entity of *Pandu* can be correlated with anaemia in modern medical science due to similarities in clinical presentation and symptomatology. Anaemia, a significant global public health issue, is the most common nutritional deficiency disorder worldwide. This article explores the Ayurvedic framework of *Pandu Roga* (anaemia) and emphasises its applicability to contemporary anaemia management practices.

**Keywords:** Pandu; Ayurveda; Srotas; Anemia; Pallor

### 1. Introduction

Ayurveda, the science of life, focuses on maintaining positive health in the healthy and eradicating ailments in the diseased through a holistic approach, lifestyle practices, dietary habits, and safe medications. Malnutrition, either due to inadequate nutritional intake or an unbalanced diet, along with population explosion, has contributed to the prevalence of diseases like *Pandu Roga*. Ayurveda describes *Pandu* as a *Pitta Pradhana Vyadhi* associated with *Rasa* and *Rakta Dhatu*. [1] The prevalence of *Panduta*, or pallor, across the body aligns closely with iron deficiency anaemia (IDA). According to the National Family Health Survey (NFHS) III data, the incidence of anaemia in urban children is 71%, in rural children, it is 84%, and overall, it is 79%. [2] This review explores the concept of *Pandu Roga* through Ayurvedic literature and its clinical application in modern contexts.

#### 1.1. Aim and Objective

To review the concept of *Pandu Roga* from different Ayurvedic literature and its correlation with modern anaemia.

### 2. Materials and Methods

Material has been collected from ancient Ayurvedic texts, research journals, and electronic databases. The review consolidates classical Ayurvedic concepts with modern scientific interpretations.

#### 2.1. Historical Review

*Pandu Roga* has been extensively referenced in ancient Indian scriptures and classical Ayurvedic texts, highlighting its clinical and historical importance. The Vedic texts, including the *Rigveda* and *Atharvaveda*, mention *Pandu Roga* under

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names such as Vilohit, Haribha, and Halima.[3] The Garuda Purana describes the therapeutic use of *Takra* (buttermilk) mixed with *Loha Churna* (iron powder) for managing *Pandu Roga*. [4]

Classical Ayurvedic texts provide detailed discussions of *Pandu Roga*, highlighting its aetiology, pathogenesis, clinical features, and management. The Charaka Samhita elaborates on this condition in the Sutrasthana (*Ashtodariya Adhyaya*) [5] and provides specific therapeutic guidelines in the *Chikitsasthana* (16th Chapter: *Pandu Roga Chikitsa*). [6] The Sushruta Samhita discusses *Pandu Roga* in the *Uttartantra* (44th Chapter: *Pandu Adhyaya*), detailing its progression through various stages, including *Kamala*, *Kumbhak*, and *Lagharak*. [7] In the Ashtanga Hridaya, the focus is on the etiological factors and the pathogenesis of *Pandu Roga*, which are comprehensively addressed in the *Nidanasthana*. [8] The Madhava Nidana provides an in-depth description of this disease in the 8th chapter, emphasising its diagnostic aspects. [9] Similarly, the Sharangadhara Samhita mentions *Pandu Roga* in the *Pradhana Khanda*, 7th Adhyaya, offering insights into its management. [10] The Bhavaprakasha includes a detailed explanation of *Pandu Roga* in the *Madhyam Khanda*, 8th Adhyaya, discussing its clinical presentation and treatment. [11] These texts form a robust foundation for understanding and managing *Pandu Roga* holistically and comprehensively.

These classical references underline the prominence of *Pandu Roga* in Ayurveda, offering a comprehensive understanding of its etiopathogenesis and therapeutic approaches. The continuity of these descriptions across various texts demonstrates the enduring clinical significance of *Pandu Roga* in Ayurvedic medical literature.

## 2.2. Review of Literature

- *Vyutpatti* (etymology): The term "*Pandu*" originates from the Sanskrit root "*Padi*," which means destruction or depletion. By adding the suffix "*Ku Pratyaya*," the word specifically conveys the idea of degeneration or loss. In Ayurveda, *Pandu* is categorised as a condition marked by significant changes in skin colour, reflecting its classification under diseases identified by altered pigmentation. [12]
- *Nirukti* (derivation): According to the *Shabdarnava Kosh*, "*Pandu*" refers to a colour resembling the pale yellowish hue of *Ketaki* flower (screwpine) pollen. (It is a fragrant flower that belongs to the *Pandanus* genus. In Ayurveda, it is often used as a metaphor for its pale yellowish-white colour) [13]
- "*Pandu Roga*" describes a disease characterised by a pale complexion, resembling the specific shade of "*Pandu Varna*." [14]
- Definition: *Pandu Roga* is a condition characterised by prominent paleness throughout the body. The term "*Pandu*" refers to this pale appearance, which is the main feature of the disease. It occurs when an imbalance causes this noticeable discolouration, impacting the individual's overall health. [15]
- *Nidana* (Aetiology) of *Pandu Roga*: *Nidana*, or the cause of a disease, is crucial because avoiding the underlying factors is the first step in treatment. The *Nidana* (causes) of *Pandu Roga* can be categorised into three types

2.2.1. *Aharaja Nidana* (Dietary Causes): According to Acharya Charaka, the following dietary factors can lead to *Pandu Roga*. [16]

- Overconsumption of *Kshara* (alkaline substances), *Amla* (sour), *Lavana* (salty), *Ati Ushna* (very hot foods), *Viruddha Bhojana* (incompatible foods), and *Asatmya Bhojana* (unhealthy food).
- Excessive intake of *Nishpava* (Flat bean), *Masha* (pulses), and *Pinyaka* (foods rich in fats).
- Overconsumption of *Madya* (alcohol).
- Excessive intake of *Kashaya* (astringent) and *Katu* (pungent) tastes.

2.2.2. *Viharaja Nidana* (Lifestyle Causes): Acharya Harita describes several lifestyle factors that contribute to the development of *Pandu Roga*, [17] some of which are new and modified from ancient texts

- *Nidranasha* (lack of sleep)
- *Atinidra* (excessive sleep)
- *Avyayama* (lack of physical exercise)
- *Atishrama* (overexertion or excessive exercise)

Other factors such as *Snehavibrama* (disruption of oil therapy), *Snehatiyoga* (improper use of fats or oils), and *Amatisara* (excessive consumption of oily foods) also contribute to the disease. [18]

These factors highlight the importance of maintaining a balanced diet and lifestyle to prevent and manage *Pandu Roga*.

### 2.2.3. Nidanarthakara Roga (Diseases Acting as Triggers for Pandu Roga)

In Ayurvedic texts, *Pandu Roga* is sometimes seen as a symptom of other underlying diseases or as an *Upadrava* (secondary complication). [19] These diseases can act as triggers or contributing factors for the development of *Pandu Roga*. Some of the conditions that may lead to *Pandu Roga* include

- *Raktarsha* (blood disorders)
- *Kaphaja Arsha* (haemorrhoids due to an imbalance of Kapha)
- *Raktarbuda* (blood tumors)

Table 1 lists diseases considered *Nidanarthakara Rogas* (diseases that contribute to *Pandu Roga*) according to various classical Ayurvedic texts. If not properly managed, these conditions can increase the likelihood of developing *Pandu Roga*.

**Table 1** List of diseases that are considered *Nidanarthakara Rogas* (diseases that contribute to *Pandu Roga*)

Sr.No	ROGA	*Cha.	*Su.	*A.H.	*M.N.	*Ha.	*Bha.
1.	Grahani	-	+	+	-	-	-
2.	Jeerna Jwara	+	-	-	-	-	-
3.	Katikataruna Marmavedana	-	+	-	-	-	-
4.	Kaphajarsha	-	-	+	+	-	+
5.	Punaravartaka Jwara	+	-	-	-	-	-
6.	Plihodara	-	+	+	-	-	-
7.	Raktatiprabartana	-	+	-	-	-	-
8.	Rakta kshaya	-	-	-	-	+	+
9.	Raktasrava	-	+	-	-	-	-
10.	Raktarsha	+	+	-	-	-	-
11.	Rajyakshma	-	+	-	-	-	+
12.	Raktarbuda	-	+	-	+	-	+
13.	Rasa pradoshaja Vikara	+	-	-	-	-	-
14.	Raktapradara	-	-	-	-	-	+
15.	Sannipatodara	-	+	-	-	-	-
16.	Shohta	+	-	-	-	-	-
17.	Shwasa	+	-	-	-	-	-
18.	Santarpana janya roga	+	-	-	-	-	-
19.	Upadrava of rakta pitta	-	+	-	+	-	-
20.	Vedha of raktavahini dhamani	-	+	-	-	-	-
21.	Yakritpliha vedha	-	+	-	-	-	-
22.	Antarlohia	-	+	-	-	-	-

\*Cha – Charak Samhita, Su. – Sushrut Samhita, A.H. – Ashtang hrudya, M.N.- Nadhav Nidan, Ha. – Harit Samhita, Bha. - Bhavprakash

### 2.3. Types of Pandu Roga

According to *Acharya Charaka*, *Pandu Roga* is classified into five types [20], while *Acharya Sushruta* recognises only four [21], excluding the *Mridabhakshanjanya* variety. The types described are:

- *Vataja Pandu*: This type occurs when *Vata* is aggravated due to improper diet and lifestyle, leading to the onset of *Pandu Roga*.
- *Pittaja Pandu*: In individuals with a *Pitta Prakriti*, consuming foods and activities that provoke *Pitta Dosha* can lead to its vitiation, which in turn affects the *Rasa*, *Raktha* (blood), and *Mamsa* (muscle) tissues, causing *Pittaja Pandu*.
- *Kaphaja Pandu*: This type occurs when *Kapha Dosha* is aggravated due to improper diet and lifestyle, leading to the vitiation of *Kapha* and causing *Kaphaja Pandu*.
- *Sannipataja Pandu*: This form occurs when all three doshas (*Vata*, *Pitta*, and *Kapha*) are simultaneously aggravated due to improper diet and lifestyle, leading to a condition that shows symptoms of all three types of *Pandu*.
- *Mridabhakshanjanya Pandu*: Acharya Charaka, Vagbhata, and Madhava describe this type of *Pandu* as being caused by the consumption of soft or clay-like substances. [22,23,24] Depending on the type of soil consumed: *Madhura Rasa* (sweet taste) aggravates *Kapha*, *Lavana Rasa* (salty taste) aggravates *Pitta*, and *Kashaya Rasa* (astringent taste) aggravates *Vata*.

Acharya Harita, in the *Harita Samhita*, mentions eight types of *Pandu*, with *Kamla*, *Kumbhakamla*, and *Halimaka* being considered synonyms for *Pandu*. However, some scholars believe these conditions are secondary to *Pandu* and should not be classified as types of disease. They also argue that *Mridabhakshanjanya Pandu* should be categorised under the *Vataja*, *Pittaja*, and *Kaphaja* types, as it arises due to the vitiation of the respective *doshas*. Based on logic, Acharya Charaka's classification is considered more rational and widely accepted.

#### 2.4. Purvarupa (Prodromal Symptoms) of Pandu Roga

Acharya Charaka describes the following prodromal symptoms for *Pandu Roga* [25]

- *Hridyaspandanam*: Palpitations (rapid heartbeat)
- *Rokshyam*: Dryness of the skin
- *Swedabhavah*: Absence of sweating
- *Shramsatatha*: Fatigue or tiredness

Acharya Sushruta lists additional symptoms as precursors to *Pandu Roga* [26]

- *Twaksphotnam*: Cracking of the skin
- *Shthevan*: Excessive salivation
- *Gatrasada*: A sense of weakness or lassitude in the limbs
- *Mridbhakshanam*: Craving for mud or clay
- *Prekshankootsothah*: Swelling around the eye socket
- *Vidmutra Pitata*: Yellowing of the stool and urine
- *Avipaka*: Indigestion

These symptoms appear before the full onset of *Pandu Roga* and help in early detection and management.

#### 2.5. Rupa (Symptoms) of Pandu Roga

According to Acharya Charaka, the symptoms of *Pandu Roga* are categorised into *Samanya Rupa* (general symptoms) and *Vishesh Rupa* (specific symptoms), depending on the involvement of the *doshas*. [27] These symptoms are as follows:

##### 2.5.1. General Symptoms (Samanya Rupa)

- *Durbala*: Weakness or fatigue
- *Sadan*: Fatigue
- *Anna-Dvit*: Loss of appetite or inability to eat
- *Shrama-Bhrama-Nipidita*: Feeling of tiredness, dizziness, and discomfort
- *Gatra-Shoola*: Pain in the body, especially in the limbs
- *Jvara*: Fever
- *Shwasa*: Shortness of breath
- *Gaurav*: Feeling of heaviness in the body
- *Aruchi*: Loss of taste or disinterest in food

### 2.5.2. Specific Symptoms (*Vishesh Rupa*)

- *Mriditairiva Gatra*: The body feels as if the limbs are made of soft material
- *Shunaksikuto*: Sunken eyes, often associated with a pale face
- *Haritah*: Yellowish complexion
- *Shirnaloma*: Loss of hair
- *Hataprabhah*: Dull or lifeless appearance
- *Kopana*: Irritability or mood swings
- *Shishiradvishi*: Sensitivity to cold or cold intolerance
- *Nidralu*: Excessive sleepiness or lethargy
- *Sthivan*: spitting frequently
- *Alpavak*: Reduced speech or disinterest in conversation
- *Pindikodveshta*: Discomfort or pain in calf muscles
- *Kati uru pada ruk*: Pain in the lumbar region, thighs and feet.
- *Sadan*: Body ache

These symptoms reflect the various signs of *Pandu Roga*, and understanding them helps in diagnosing and managing the condition.

*Samprapti* (Pathogenesis) of *Pandu Roga*: According to Acharya Charaka, the pathogenesis of *Pandu Roga* is described as follows [28]

When a person consumes etiological factors (*Nidana*) that disturb the balance of the doshas, the *Pitta* located in the *Hridaya* (the heart, specifically the *Sadhak Pitta*) becomes aggravated. This vitiated *Pitta* is then driven out of the heart by the forceful action of *Vata*. The aggravated *Pitta* moves to the *Dash-Dhamani* (the vessels connected to the heart) and begins circulating throughout the body.

As this *Pitta* spreads, it disrupts the balance of *Kapha*, *Vata*, *Asrika* (blood), *Twaka* (skin), and *Mamsa* (muscles). This disturbance results in the appearance of abnormal skin colourations, such as *Pandu* (paleness), *Haridra* (yellowish), and *Harita* (greenish), among others.

This pathogenesis explains how the symptoms of *Pandu Roga*, like the characteristic pale complexion, arise due to the imbalance and vitiation of these bodily elements.

## 2.6. *Samprapti Ghataka* (Factors of Pathogenesis) in *Pandu Roga*

### 2.6.1. The pathogenesis of *Pandu Roga* involves the following key elements

- *Dosha*: *Pitta* is the primary dosha, but it affects all three doshas, making it a *Tridoshaja* condition.
- *Pitta*: Specifically, the *Sadhaka*, *Ranjaka*, and *Bhrajaka* subtypes of *Pitta* are affected.
- *Kapha*: The *Avalambaka* and *Kledaka* subtypes of *Kapha* are involved.
- *Vata*: The *Vyan Vayu* and *Samana Vayu* are disturbed.

### 2.6.2. *Dushya*: The condition affects the following tissues

- *Twaka* (skin)
- *Rasa* (bodily fluids)
- *Rakta* (blood)
- *Mamsa* (muscles)
- *Meda* (fat)

### 2.6.3. *Strotas*

- *Rasavaha Strotas*
- *Raktavaha Strotas*
- *Stroto Dushti*: The channels become *Sanga* (blocked) or the *Vimarga Gamanam* of doshas (moving in the wrong direction).
- *Agni* (digestive fire)
- *Jatharagni* (digestive fire)
- *Dhatvagni* (tissue fires)

- Agni Dushti: The digestive fires are weakened, leading to Mandagni (low digestive capacity).
- Udbhavasthaan (originating site): The disease begins in the Amashaya (stomach).
- Adhishtana (primary location): The primary location of the disease is within the Twaka (skin) and Mamsa (muscles), both externally and internally.
- Vyaktasthaan (manifestation site): The disease becomes visible on the Twaka (skin).
- Sancharasthaan (spread sites): The disease spreads through the Twaka (skin) and Mamsa (muscles).
- Svabhav (nature): The disease tends to be Chirkari, meaning it can last or persist for a long time.

This detailed breakdown explains the various factors involved in the development and progression of *Pandu Roga*, highlighting the dosha imbalances, affected tissues, and channels.

## 2.7. Sadhya-Asadhyata (Prognosis) of Pandu Roga [29]

In the case of persistent chronic *Pandu Roga*, when the *Dhatus* (bodily tissues) become *Khar* (rough) and there is no improvement, the disease is considered *Asadhya* (incurable). These patients may also develop *Shotha* (oedema), and they perceive everything around them as yellowish in colour.

The affected tissues of the body, particularly the *Dhatus*, become *Ruksha* (dry), leading to a noticeable decrease in both *Bala* (strength) and *Varna* (colour/complexion). Additionally, *Shotha* (swelling) develops.

The patient may suffer from constipation and loose stools mixed with mucus that appears greenish. As the disease progresses, the person becomes *Deena* (weak) and suffers from *Murcha* (fainting) and *Trushna* (thirst).

This indicates a poor prognosis, and the patient's condition becomes increasingly difficult to treat as the disease progresses.

### 2.7.1. Chikitsa (Treatment) for Pandu Roga

In cases of *Sadhya Pandu Roga* (curable stages of *Pandu*), Acharya Charaka emphasises purification therapies to address the underlying *Doshas*:

*Teekshna Vaman* (intense emesis) and *Virechana* (purgation) should be administered using mild and bitter medications to cleanse the system effectively. Once the patient's system has been purified, a diet of *Pathya Anna* (wholesome and easily digestible food) should be provided to restore balance and strength. [30]

Acharya Sushruta also highlights the importance of *Vamana* and *Virechana* in managing *Pandu Roga*. He states "The vitiated *Doshas*, which accumulate in the *Dhatus* (tissues), *Srotas* (channels), and *Ashayas* (organs), should be expelled repeatedly through emesis and purgation." If these therapies are not performed, the aggravated *Doshas* may lead to *Shotha* (swelling) in different parts of the body, worsening the condition. [31]

Both Acharyas agree on the critical role of purification therapies in treating *Pandu Roga*, ensuring the removal of deeply lodged *Doshas* and preventing further complications.

*Upadrava* (Complications) of *Pandu Roga*: Acharya Sushruta describes the following as complications (*Upadrava*) associated with *Pandu Roga* [19]

- *Aruchi*: Loss of taste or appetite.
- *Pipasa*: Excessive thirst.
- *Vamana*: Vomiting.
- *Jwara*: Fever.
- *Murdharuja*: Headache.
- *Agnisada*: Weak digestive fire leading to indigestion.
- *Shopha*: Swelling or edema.
- *Kanthagata Abalatwa*: Weakness in the throat.
- *Murcchha*: Fainting spells or loss of consciousness.
- *Klama*: Generalized fatigue or exhaustion.
- *Hrudayapidana*: Pain or discomfort in the heart region.

These complications indicate the severity and progression of *Pandu Roga* if not managed appropriately.

## 2.8. *Pathya-Apathya* (Diet and Lifestyle Recommendations) for *Pandu Roga*:

*Pathya* (Recommended Diet and Lifestyle)

### 2.8.1. According to Acharya Charaka:[32]

- Grains: Use of *Shali*, *Yava*, and *Godhoom* (wheat) prepared with soups (*Yusha*) made from *Mudga* (green gram), *Adhaki* (pigeon pea), and *Masur* (lentil).
- Meat Soup: *Jangala Mamsa Rasa* - Consume soup prepared from the meat of animals from arid regions.
- Medicated Ghee: Use of *Panchagavya Ghrit*, *Mahatiktaka Ghrit*, and *Kalyanaka Ghrit* for *Snehan Karma* (internal oleation therapy).

### 2.8.2. According to Acharya Sushruta: [33]

- *Arishta*: *Arishta* prepared from *Guda* (jaggery), *Sharkara* (sugar), and *Madhu* (honey) is beneficial.
- *Asava*: *Asava* prepared with *Mutra* (urine) and *Kshara* (alkaline substances) is recommended.
- Meat Soup: Consume *Jangala Mamsa Rasa* enriched with *Sneha* (fat) and *Amalaki Swaras* (juice of Indian gooseberry).

## 2.9. *Apathya* (To Be Avoided)

As mentioned in Bhaisajya Ratnavali: [34]

### 2.9.1. Activities to Avoid

- *Rakta Sruti*: Bloodletting.
- *Dhoomapan*: Smoking or inhaling fumes.
- *Vaman Vega Dharan*: Suppression of the urge to vomit.
- Excessive sweating (*Swedan*) and sexual activity (*Maithoon*).

### 2.9.2. Foods to Avoid

- Vegetables and Pulses: Avoid *Shimbi* (beans), *Patrashaak* (leafy greens), *Ramath* (*Ferula* roots), *Masha* (black gram), and *Pinyaak*.
- Beverages: Avoid *Ambupaan* (excess water), *Sura* (alcohol), and water from rivers originating in the *Vindhya* and *Sahyadri* mountains.
- Edibles: Avoid *Tambul* (betel leaves), *Sarshapa* (mustard), sour foods, and all types of salts.

### 2.9.3. Unwholesome Foods

- Avoid foods that are *Virudhha Anna* (incompatible combinations), *Guru* (heavy to digest), and *Vidahi* (cause burning sensation).

Following the *Pathya* and avoiding the *Apathya*, as outlined above, helps manage *Pandu Roga* effectively and prevents its progression.

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## 3. Discussion

The Ayurvedic conceptualisation of *Pandu Roga* closely correlates with the clinical presentation of anaemia in modern medicine, particularly regarding symptoms, etiological factors, and therapeutic approaches. Ayurveda describes *Pandu Roga* as a systemic disorder resulting from vitiated *Doshas*, particularly *Pitta*, affecting the *Rasa* and *Rakta Dhatus*, leading to symptoms such as pallor, weakness, and fatigue. These manifestations align with the cardinal signs of anaemia, such as reduced haemoglobin levels, fatigue, and pallor.

**Aetiology and Pathogenesis:** The causes of *Pandu Roga*, including improper dietary habits, lifestyle imbalances, and diminished *Agni* (digestive fire), align with modern etiological factors of anaemia, such as nutritional deficiencies, malabsorption, and chronic illnesses. The Ayurvedic emphasis on *Mandagni* (low digestive power) resonates with the modern understanding that inadequate nutrient absorption and poor metabolism significantly contribute to anaemia.

**Management Approaches:** Ayurvedic management of *Pandu Roga* includes *Shodhana* (detoxification therapies like *Vamana* and *Virechana*) and *Shamana* (pacifying treatments using herbal formulations). These therapies are aimed at

restoring *Dosha* balance, enhancing *Agni*, and improving the quality of *Dhatus*. Modern medicine, on the other hand, relies heavily on iron supplementation, dietary modifications, and addressing underlying conditions causing anaemia.

**Integrative Potential:** The integration of Ayurvedic Panchakarma therapies with modern nutritional and pharmacological interventions could provide a comprehensive and sustainable approach to anaemia management. Ayurvedic formulations such as *Lauha Kalpas*, herbal tonics, and medicated *ghees*, when used alongside iron supplements, may improve absorption and mitigate the gastrointestinal side effects often associated with synthetic supplements. Furthermore, Ayurveda's emphasis on lifestyle modifications and *Pathya-Apathya* (wholesome and unwholesome diet) complements modern dietary guidelines by promoting better digestion and nutrient assimilation.

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#### 4. Conclusion

The holistic nature of Ayurveda, combined with evidence-based modern medical interventions, offers a synergistic approach to managing anaemia. Future research should explore the efficacy of integrated protocols for improving clinical outcomes and patient quality of life in anaemia.

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