**🔍 High-Level Churn Insights (Based on Plots)**

Each subplot shows **percent-based stacked bar charts** grouped by a categorical variable (like gender, contract, etc.) with a hue='Churn'. The orange color typically represents churned customers.

**1. 📊 Demographics and Basic Services (from 3rd Image)**

| **Feature** | **Key Insight** | **Churn % (approx)** | **Notes** |
| --- | --- | --- | --- |
| **Gender** | Male and Female customers churn at **nearly equal rates** | ~26–27% | Gender isn't a strong predictor of churn. |
| **SeniorCitizen** | Senior Citizens are **more likely to churn** | ~41.7% | Compared to non-seniors (~23.6%) – indicates that age group matters. |
| **Partner** | Customers **without partners** churn more | ~31% vs 19.7% | Being in a relationship correlates with retention. |
| **Dependents** | Customers **without dependents** churn more | ~31.3% vs 15.5% | Family responsibilities possibly drive service continuity. |
| **PhoneService** | No significant difference | ~25–26% | Almost uniform churn behavior. |
| **MultipleLines** | Again, minimal effect | ~25–28% | This feature alone doesn’t impact churn much. |

**2. 🌐 Internet Services and Add-ons (from 2nd Image)**

| **Feature** | **Key Insight** | **Churn % (approx)** | **Notes** |
| --- | --- | --- | --- |
| **InternetService** | Fiber optic users have **highest churn** | ~42.9% | Likely due to higher cost or instability. DSL (~19%) is much better retained. |
| **OnlineSecurity** | Lack of security correlates with churn | ~41.9% churn among "No" users | Security services appear to **improve retention**. |
| **OnlineBackup** | Similar to above | ~39.5% churn without backup | Value-added services reduce churn. |
| **DeviceProtection** | Protection reduces churn | ~39.1% churn without it vs ~22.5% with | Financial/product protection helps. |
| **TechSupport** | Clear churn reduction if provided | ~41.6% churn without support vs ~15.2% with it | Critical service for user satisfaction. |
| **StreamingTV / Movies** | Streaming has some effect | ~33–35% churn for non-users | Possibly overlaps with bundled service pricing. |

**3. 📄 Contractual and Billing Factors (from 1st Image)**

| **Feature** | **Key Insight** | **Churn % (approx)** | **Notes** |
| --- | --- | --- | --- |
| **Contract** | **Strongest churn driver** | Month-to-month: **~42.7%**, One year: ~11.3%, Two year: ~2.8% | **Longer contracts significantly reduce churn**. |
| **PaperlessBilling** | Customers with paperless billing churn more | ~30.6% vs 18.3% | Possibly reflects digital-only, low-commitment users. |

**🧠 Interrelated Observations**

1. **Risky Customer Profile (High Churn Likelihood):**
   * Fiber optic internet user
   * No partner or dependents
   * Uses month-to-month contract
   * Has no tech support, online security, or backup services
   * Uses paperless billing
   * Senior citizen
2. **Safe Customer Profile (Low Churn Likelihood):**
   * Has dependents and partner
   * Uses DSL or no internet
   * Has a two-year contract
   * Subscribed to add-ons like TechSupport, OnlineSecurity
   * Uses physical billing

**📌 Quantified Summary:**

* Churn rate exceeds **40%** for month-to-month contract users and fiber optic internet subscribers.
* Add-on features (security, tech support, backup) reduce churn by **15–25%**.
* Seniors churn almost **2x more** than non-seniors.
* Customers with a family (partner/dependents) churn **10–15% less**.