



The keys to predict a divorce

with Gottman's Therapy

Studied by Giuseppe Testa



Overview

Gottman couples therapy is a research-based approach to couples counseling that aims to improve relationships by increasing friendship, managing conflict, and fostering a shared life purpose.

How it works?

- **Assessment:** The process begins with an assessment where the therapist meets with the couple together and individually, reviews questionnaires, and may even record a conflict to analyze patterns.
- **Interventions:** Therapists use the assessment to create a tailored plan that includes specific interventions and exercises.
- **Skills-based:** It teaches couples skills to improve their friendship, navigate conflict constructively, and build deeper intimacy and trust.

This study is not going to take in analysis “external” problems like financial status, salary, religious view, political ideology, age, number of children, job etc...



How effective is the Gottman's method?



To help us answer this questions we used a ML (Machine Learn) model to study a dataset containing about 150 couples with their corresponding Divorce Predictors Scale variables (DPS) on the basis of Gottman couples therapy.

The model was found to have the following properties:


An **R2** score of: 89.06%

The R2 score gives, as the name says, a score to our model. It means that the 89% of the time the model is capable to predict (get close) if a couple is going to divorce or not

A **Mean Absolute Error** of: 10.5%

The MAE tells us that the result predicted from the model can have a $\pm 10.5\%$ variation

Example:
the model expects a 80% probability of divorce, with MAE we know that the predicted result can have between 90.5% and 69.5% probability



“Going to couples therapy doesn't mean
your relationship has failed. It means you
care enough to try and save it”

~ Lori Gottlieb



Understanding the numbers



The data

01.1

The dataset contains the answers that 150 couples gave over the 54 questions written in the Gottman's method

The couples are from various regions of Turkey wherein the records were acquired from face-to-face interviews from couples who were already divorced or happily married.

Data was collected using a 5-point scale: the closer the score is to 0, the fewer the issues in that specific area.

The dataset looks like this:

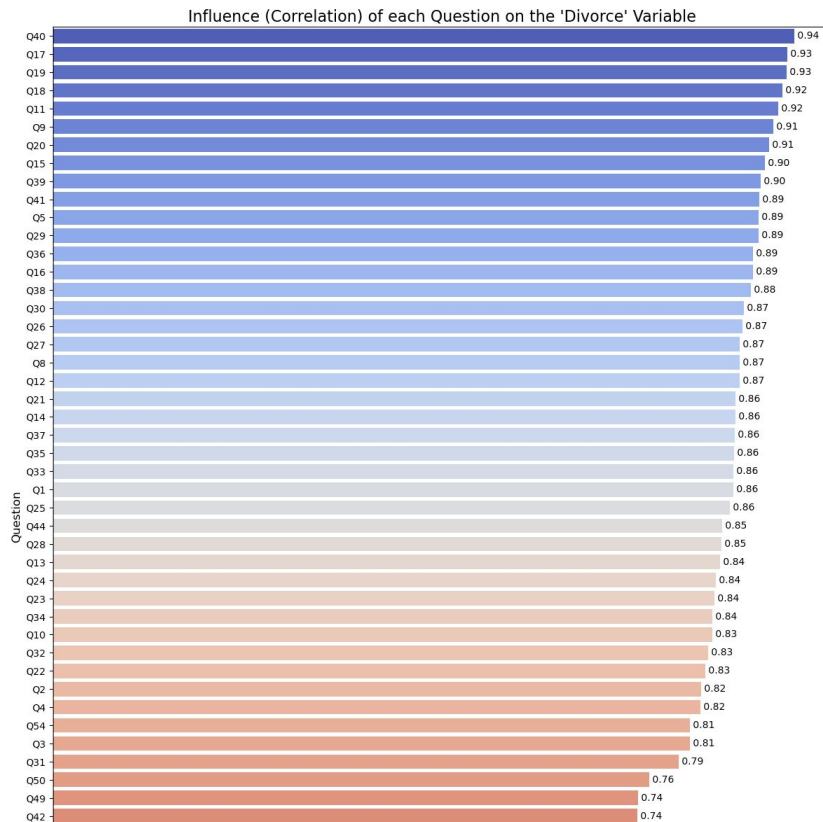
| Couples # | Q1 | Q2 | Q3 | ... | Q54 | Divorce |
|------------|----|----|----|-----|-----|---------|
| Couple 1 | 2 | 2 | 4 | 0 | 1 | 1 |
| Couple 2 | 4 | 4 | 4 | 4 | 2 | 1 |
| Couple 3 | 2 | 2 | 2 | 1 | 2 | 1 |
| ... | 3 | 2 | 3 | 3 | 2 | 1 |
| Couple 150 | 0 | 0 | 0 | 0 | 1 | 0 |

The trend

02.1

Doing researches on the data, we found out that there isn't a specific linear pattern that the data is following.

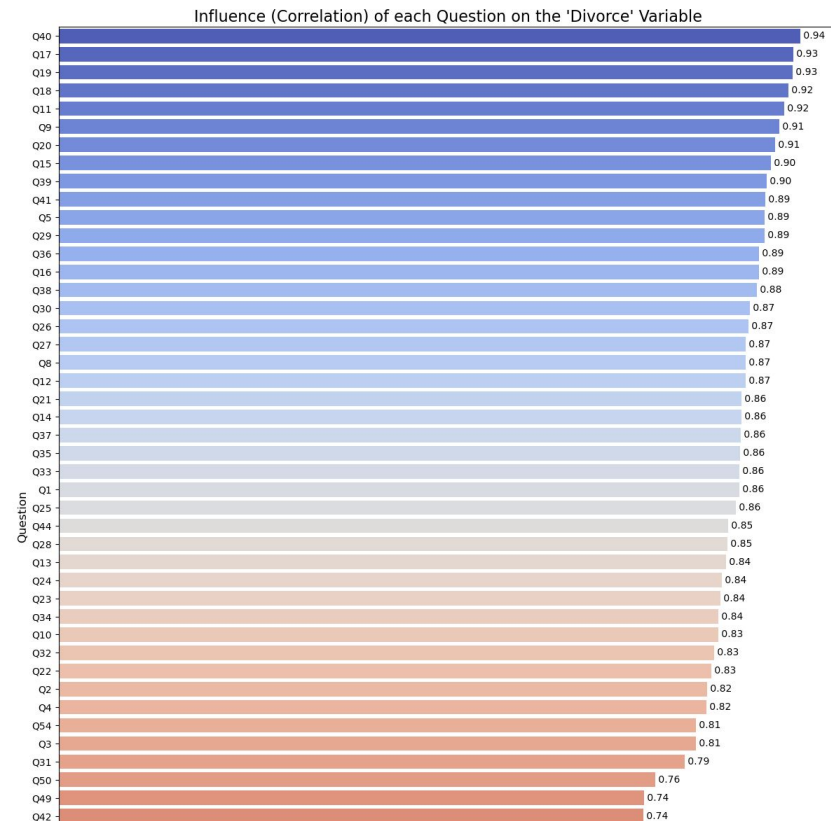
But we did found out that there are some questions that got "more weight" on the final result than others.



What the trend reveals

02.2


- They are predictive:
 - High-impact questions don't just describe unhappiness—they predict it.
- They Pinpoint the "Breaking Point":
 - A couple can survive "surface-level" problems
 - It is nearly impossible to survive "structural" failures
- They Indicate Severity
 - This allows us to diagnose the health of a relationship: Low-Impact Issues signal the need for "Maintenance" and High-Impact issues signal a "Deep Structural Crisis"





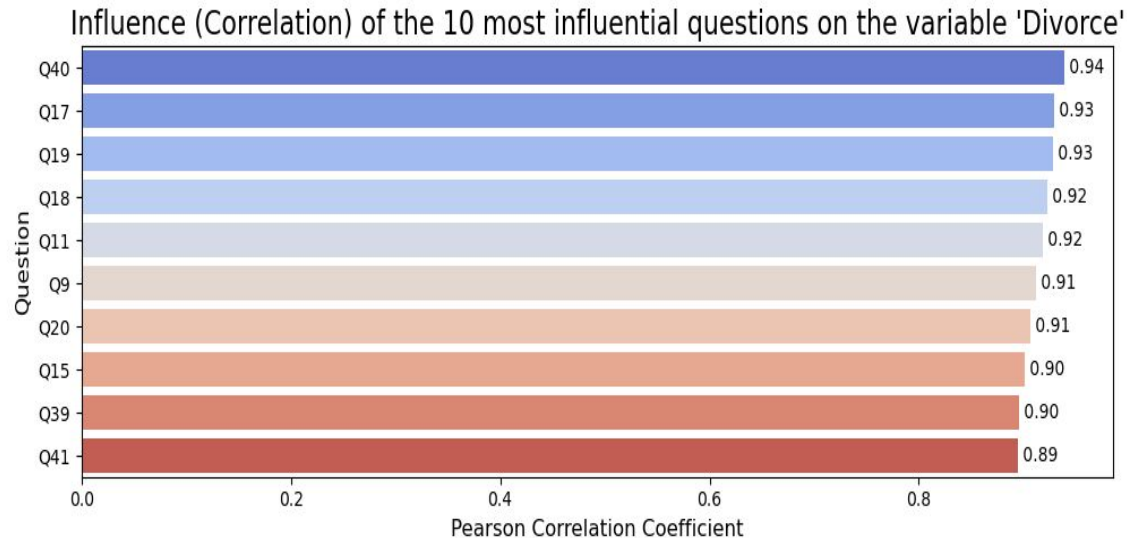
Not all problems are created equal


The difference between "Structural Failures" and "Surface Cracks"



The 10 most influential questions

Here we can take a look at the 10 most influential questions. This data strongly suggests that the breaking point of a marriage isn't a single issue, but a critical failure in Foundation (a mismatch in core values) and Communication (destructive conflict patterns)






The 10 most influential questions (1-5)

Keep in mind:

Data was collected using a 5-point scale: the closer the score is to 0, the fewer the issues in that specific area.

| Question | Correlation | Mean for divorced couples | Mean for non-divorced-couples |
|--|-------------|---------------------------|-------------------------------|
| We're just starting a discussion before I know what's going on. | 0.94 | 4 | 0 |
| We share the same views about being happy in our life with my spouse | 0.93 | 3 | 0 |
| My spouse and I have similar ideas about how roles should be in marriage | 0.93 | 3 | 0 |
| My spouse and I have similar ideas about how marriage should be | 0.92 | 3 | 0 |
| I think that one day in the future, when I look back, I see that my spouse and I have been in harmony with each other. | 0.92 | 3 | 0 |




The 10 most influential questions (6-10)

Keep in mind:

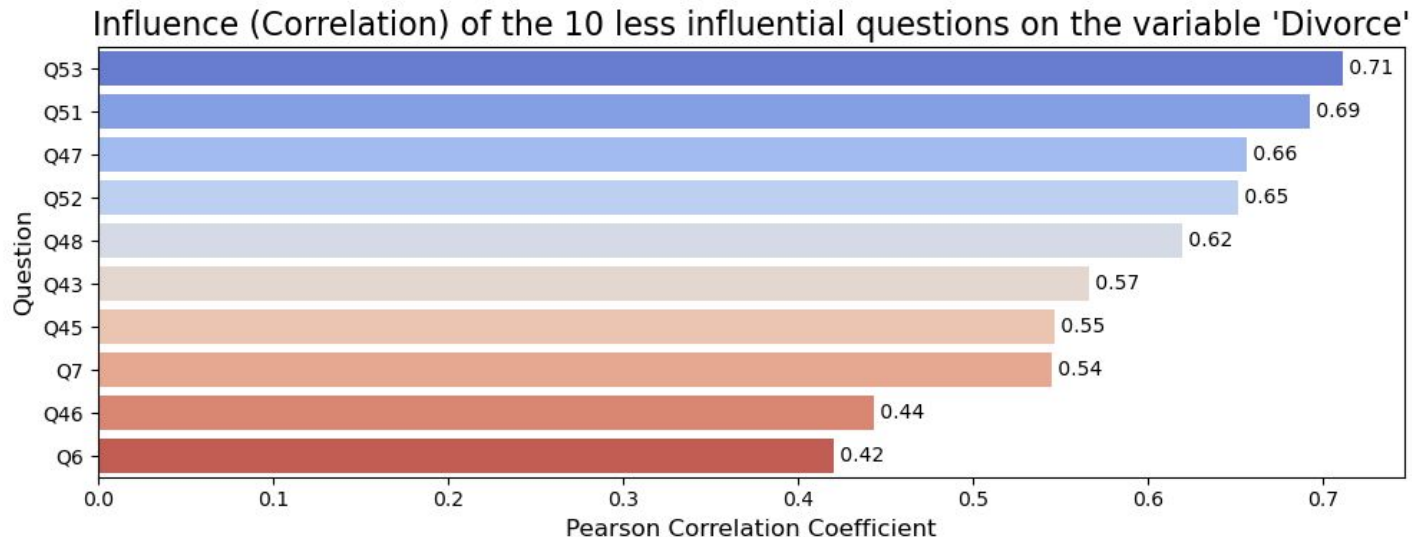
Data was collected using a 5-point scale: the closer the score is to 0, the fewer the issues in that specific area.


| Question | Correlation | Mean for divorced couples | Mean for non-divorced-couples |
|--|-------------|---------------------------|-------------------------------|
| I enjoy traveling with my wife. | 0.91 | 3 | 0 |
| My spouse and I have similar values in trust. | 0.91 | 3 | 0 |
| Our dreams with my spouse are similar and harmonious. | 0.9 | 3 | 0 |
| Our discussions often occur suddenly. | 0.9 | 4 | 1 |
| When I talk to my spouse about something, my calm suddenly breaks. | 0.89 | 4 | 0 |



The 10 least influential questions

Here we can take a look at the 10 least influential questions. A possible interpretation is that these issues are symptoms of unhappiness, not the root cause. While the 'Top 10' represented structural failures (like values and conflict), these 'Bottom 10' are the 'surface cracks'—problems that are annoying, but not fatal to the relationship.





The 10 least influential questions (1-5)

Keep in mind:

Data was collected using a 5-point scale: the closer the score is to 0, the fewer the issues in that specific area.

| Question | Correlation | Mean for divorced couples | Mean for non-divorced-couples |
|---|-------------|---------------------------|-------------------------------|
| When I discuss, I remind my spouse of her/his inadequacy. | 0.71 | 3 | 1 |
| I'm not the one who's wrong about problems at home. | 0.69 | 3 | 2 |
| When I discuss with my spouse, I stay silent because I am afraid of not being able to control my anger. | 0.66 | 3 | 1 |
| I wouldn't hesitate to tell my spouse about her/his inadequacy. | 0.65 | 3 | 2 |
| I feel right in our discussions. | 0.62 | 3 | 2 |




The 10 least influential questions (5-6)

Keep in mind:

Data was collected using a 5-point scale: the closer the score is to 0, the fewer the issues in that specific area.

| Question | Correlation | Mean for divorced couples | Mean for non-divorced-couples |
|--|-------------|---------------------------|-------------------------------|
| I mostly stay silent to calm the environment a little bit. | 0.57 | 3 | 2 |
| I'd rather stay silent than discuss with my spouse. | 0.55 | 3 | 2 |
| We are like two strangers who share the same environment at home rather than family. | 0.54 | 1 | 0 |
| Even if I'm right in the discussion, I stay silent to hurt my spouse. | 0.44 | 3 | 2 |
| We don't have time at home as partners. | 0.42 | 1 | 0 |



“The secret of a happy marriage remains
a secret”

~ Henny Youngman

But are we really sure about that?

Conclusion

The data reveals two distinct types of conflict that lead to divorce: **Foundation Failure** (a deep misalignment of core values, dreams, and life goals) and **Communication Breakdown** (the use of destructive patterns during arguments).

The "Top 10": Foundation Failure (Corr: 0.89 - 0.94)

These high-impact questions show a fundamental mismatch in the partnership. They cluster around:

- **Core Value Misalignment:** Chronic disagreement on marriage roles, what marriage "should be," and what "happiness" means.
- **No Shared Future:** An inability to see future harmony or share common dreams.
- **Emotional Escalation (Flooding):** Arguments spiral out of control "before I know what's going on" and calm "breaks suddenly."



Conclusion



The "Least Influential": Communication Breakdown (Corr: 0.42 - 0.71)

These questions are a perfect catalog of Gottman's "Four Horsemen." They show a clear pattern of:

- **Contempt:** "I remind my spouse of her/his inadequacy."
- **Defensiveness:** "I'm not the one who's wrong about problems."
- **Stonewalling (Shutting Down):** "I'd rather stay silent than discuss."
- **Disengagement:** "We are like two strangers."



Conclusion

The Final Verdict: Foundation vs. Communication

While destructive communication (The "Four Horsemen") is clearly linked to lower correlation with divorce (Corr: 0.42 - 0.71), a misalignment of the Foundation (values, dreams, roles) is a dramatically stronger predictor (Corr: 0.89 - 0.94).

The key insight:

Poor communication acts like a slow-burning acid, eroding a marriage. But a lack of shared core values shows a far higher divorce rate, suggesting this lack makes a stable marriage almost impossible to build in the first place



A decorative horizontal bar with a teal segment on the left and an orange segment on the right.

Thank you.

Dataset:

<https://www.kaggle.com/datasets/andrewmvd/divorce-prediction>

Notebook python (analysis):

<https://we.tl/t-hxk6b50jix>

