# Data Analysis

這次的作業中，我分析了一篇密西根大學心理學系副教授William J Chopik

發表在期刊 Personal Relationships 上的文章：成年人一生中人際關係、支

持、健康和幸福之間的關聯。在這份論文中，分析了兩份研究，研究一中調

查了了約 27 萬名成年人，且發現友誼的重視程度與健康有正相關，而家庭

的重視程度與健康和幸福有靜態影響；研究二則研究了約 7,500 名老年人，

並表明了來自友誼的壓力預測了六年內慢性病的多寡，而來自配偶、朋友與

孩子的支持則能預測在未來的八年內會有更高的幸福感。

**Table 1.** *Study 1: Multilevel models predicting health, happiness, and subjective well-being from age and the reported importance of family and friends*

| | Health | | | | | Happiness | | | | | Subjective well-being | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $b$ | $SE(b)$ | $\beta$ | $t$ | $p$ | $b$ | $SE(b)$ | $\beta$ | $t$ | $p$ | $b$ | $SE(b)$ | $\beta$ | $t$ | $p$ |
| Age | −.01 | .0003 | −.10 | −20.84 | <.001 | .001 | .0002 | .01 | 3.18 | .001 | .02 | .001 | .28 | 20.69 | <.001 |
| Family | .07 | .01 | .03 | 12.75 | <.001 | .16 | .01 | .06 | 30.24 | <.001 | .33 | .02 | .12 | 19.67 | <.001 |
| Friend | .08 | .003 | .06 | 28.98 | <.001 | .08 | .002 | .06 | 31.44 | <.001 | .18 | .01 | .13 | 22.03 | <.001 |
| Age × Family | −.00003 | .0003 | −.0002 | −.10 | .92 | .0003 | .0003 | .002 | 1.17 | .24 | .002 | .001 | .01 | 2.10 | .04 |
| Age × Friend | .00004 | .0001 | .0005 | .27 | .79 | .0001 | .0001 | .001 | .44 | .66 | .0005 | .0004 | .01 | 1.13 | .26 |
| $Age^2$ | .000004 | .00001 | .001 | .76 | .45 | .0002 | .00001 | .06 | 33.99 | <.001 | .001 | .00002 | .19 | 35.02 | <.001 |
| $Age^2$ × Family | −.00001 | .00001 | −.002 | −.81 | .42 | −.00002 | .00001 | −.002 | −1.18 | .24 | .00001 | .00004 | .002 | .33 | .74 |
| $Age^2$ × Friend | .00003 | .0001 | .01 | 4.10 | <.001 | .00003 | .0001 | .01 | 4.84 | <.001 | .0001 | .00002 | .03 | 4.70 | <.001 |
| Gender | −.04 | .001 | −.04 | −28.77 | <.001 | .01 | .001 | .01 | 10.54 | <.001 | .04 | .004 | .04 | 10.42 | <.001 |
| Marital status | .04 | .002 | .04 | 22.37 | <.001 | .10 | .002 | .10 | 63.39 | <.001 | .23 | .01 | .23 | 45.48 | <.001 |
| Education | .04 | .001 | .09 | 56.29 | <.001 | .02 | .001 | .05 | 31.62 | <.001 | .10 | .002 | .22 | 46.99 | <.001 |
| Birth year | .01 | .0003 | .14 | 29.32 | <.001 | .01 | .0002 | .11 | 26.68 | <.001 | .03 | .001 | .50 | 36.89 | <.001 |

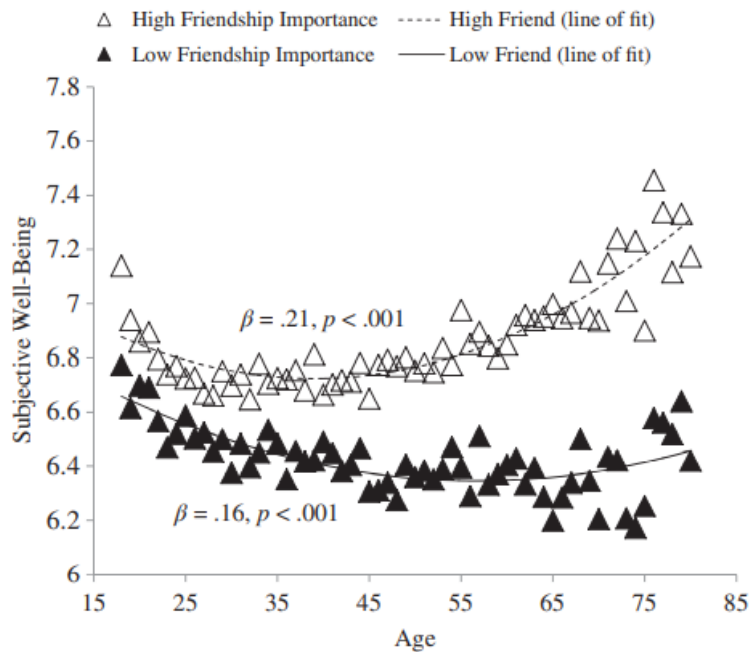*Note.* Gender: −1 = male, 1 = female. Marital status: −1 = single, 1 = partnered.

▲表格一
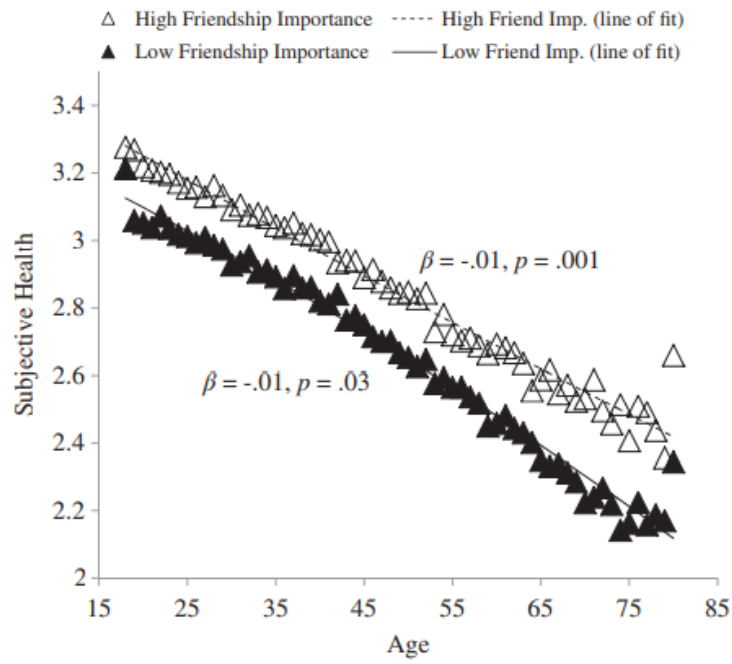
▲圖表一
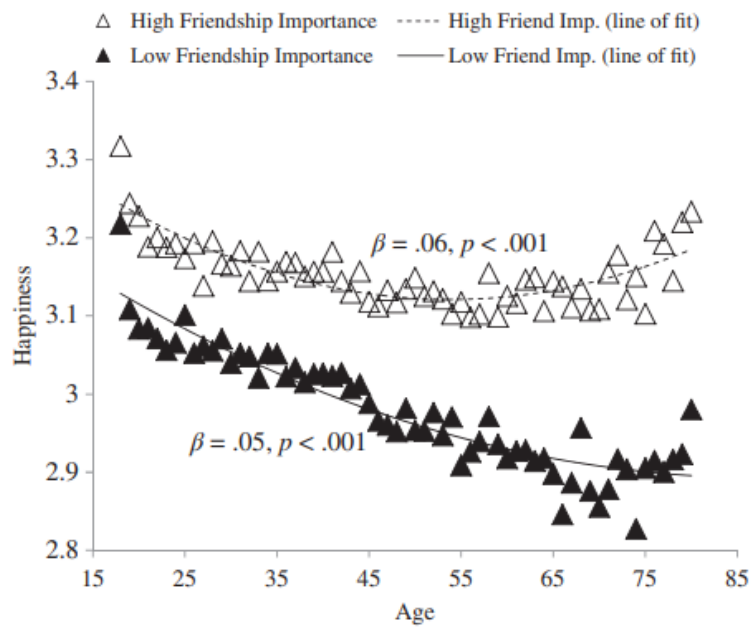


▲圖表二

▲圖表三

**1. 只有友誼的重視程度是可以更好的成為健康與幸福的預測指標，而成年時的友誼關係比家庭關係表現出更強烈的影響。**

我認為這個分析屬於描述型分析，作者透過 SPSS 對資料進行分析後，所產生的表格一中年齡平方乘以友誼重要性的欄位，可以說明友誼對每個應變數有著顯著的影響。因此我認為是敘述型分析。

**2. 研究一表明了親密關係與一生中的多個心理與生理健康有關，高品質的親密關係與提升健康、快樂程度有關。**

我認為這個分析屬於描述型與預測型分析。作者根據圖表一、二與三中對友誼重視程度高低與年齡的點及趨勢線，得到重視友誼的人較不重視友誼的人更健康、幸福的結論。而這項結論說明了友誼是影響健康與幸福程度的因素之一，並可以預期重視友誼的人總是較不重視友誼的人更健康及幸福。因此我認為這項分析的前半屬於描述型分析，後半屬於預測型分析。

**Table 2.** *Study 2: Multilevel models predicting chronic illnesses*

| | Chronic illness | | | | | | |
|---|---|---|---|---|---|---|---|
| | $b$ | $SE\,(b)$ | $\beta$ | $t$ | $p$ | $R\chi^2$ | $p$ |
| Time | .12 | .28 | .12 | 5.10 | <.001 | 20.30 | <.001 |
| Spousal support | −.09 | .04 | −.06 | −2.35 | .02 | 0.84 | .36 |
| Child support | −.09 | .03 | −.07 | −2.73 | .006 | 2.54 | .11 |
| Family support | −.02 | .03 | −.01 | −0.60 | .55 | −5.00 | .03 |
| Friend support | −.02 | .03 | −.01 | −0.60 | .55 | −4.88 | .03 |
| Spousal strain | .03 | .04 | .02 | 0.86 | .39 | −3.98 | .05 |
| Child strain | .10 | .04 | .06 | 2.34 | .02 | 0.93 | .33 |
| Family strain | .04 | .04 | .03 | 1.04 | .30 | −3.41 | .06 |
| Friend strain | .15 | .05 | .07 | 3.07 | .002 | 5.20 | .02 |
| Time × Spousal Support | −.003 | .004 | −.001 | −0.65 | .51 | −8.74 | .003 |
| Time × Child Support | .002 | .004 | .001 | 0.46 | .64 | −9.16 | .002 |
| Time × Family Support | .003 | .003 | .002 | 0.92 | .36 | −8.96 | .003 |
| Time × Friend Support | −.01 | .003 | −.01 | −3.07 | .002 | −0.27 | .60 |
| Time × Spousal Strain | −.001 | .004 | −.0004 | −.16 | .87 | −9.13 | .003 |
| Time × Child Strain | .001 | .005 | .0003 | 0.12 | .91 | −8.93 | .003 |
| Time × Family Strain | .001 | .005 | .001 | 0.30 | .77 | −8.85 | .003 |
| Time × Friend Strain | .01 | .01 | .005 | 1.76 | .08 | −5.51 | .02 |
| Gender | .004 | .02 | .004 | 0.19 | .85 | −5.82 | .02 |
| Age | .04 | .002 | .44 | 19.37 | <.001 | 349.68 | <.001 |
| Marital status | −.03 | .05 | −.03 | −.56 | .58 | −3.68 | .06 |
| Education | −.05 | .01 | −.15 | −7.38 | <.001 | 46.01 | <.001 |
| AIC | 30250.05 | | | | | | |
| −2 log likelihood | 30246.05 | | | | | | |

*Note.* Gender: −1 = male, 1 = female. Marital status: −1 = single, 1 = partnered. $R\chi^2$ = likelihood ratio tests with corresponding $p$ values; AIC = Akaike information criterion.

▲表格二

**Table 3.** *Study 2: Multilevel models predicting subjective well-being*

| | Subjective well-being | | | | | | |
| | *b* | *SE (b)* | β | *t* | *p* | $R\chi^2$ | *p* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Time | .01 | .09 | .01 | 0.15 | .881 | −2.87 | .09 |
| Spousal support | .23 | .02 | .15 | 11.82 | <.001 | 131.63 | <.001 |
| Child support | .14 | .02 | .10 | 8.34 | <.001 | 62.70 | <.001 |
| Family support | −.01 | .01 | −.01 | −0.62 | .54 | −6.41 | .01 |
| Friend support | .06 | .01 | .04 | 4.00 | <.001 | 9.33 | .002 |
| Spousal strain | −.15 | .02 | −.10 | −7.99 | <.001 | 57.24 | <.001 |
| Child strain | −.06 | .02 | −.04 | −3.15 | .002 | 3.94 | .05 |
| Family strain | −.02 | .02 | −.02 | −1.21 | .23 | −4.46 | .03 |
| Friend strain | −.04 | .02 | −.02 | −1.80 | .07 | −2.37 | .12 |
| Time × Spousal Support | −.03 | .02 | −.02 | −1.99 | .05 | −2.40 | .12 |
| Time × Child Support | −.0001 | .01 | −.0001 | −0.01 | .99 | −6.59 | .01 |
| Time × Family Support | −.01 | .01 | −.01 | −0.81 | .42 | −6.38 | .01 |
| Time × Friend Support | −.005 | .01 | −.004 | −0.38 | .71 | −6.79 | .01 |
| Time × Spousal Strain | .03 | .02 | .02 | 1.82 | .07 | −3.05 | .08 |
| Time × Child Strain | .01 | .02 | .01 | 0.53 | .60 | −5.89 | .02 |
| Time × Family Strain | .01 | .02 | .004 | 0.40 | .69 | −6.02 | .01 |
| Time × Friend Strain | .004 | .02 | .002 | 0.19 | .85 | −5.80 | .02 |
| Gender | .03 | .01 | .03 | 3.07 | .002 | 2.08 | .15 |
| Age | .003 | .001 | .02 | 2.21 | .03 | −6.85 | .01 |
| Marital status | .04 | .03 | .04 | 1.33 | .18 | −3.57 | .06 |
| Education | .02 | .003 | .06 | 6.44 | <.001 | 31.69 | <.001 |
| AIC | 23484.39 | | | | | | |
| −2 log likelihood | 23480.39 | | | | | | |

*Note.* Gender: −1 = male, 1 = female. Marital status (−1 = single, 1 = partnered). $R\chi^2$ = likelihood ratio tests with corresponding *p*-values; AIC = Akaike information criterion.

▲表格三

**3. 研究二表明了友誼壓力是預測慢性病隨著時間推移的多寡的唯一重要因素；而配偶、親子和友誼關係的支持和壓力預測著主觀幸福感。這些關聯在六至八年內是不變的。**

我認為這個分析屬於描述型與預測型分析。作者根據表格一與二中多種壓力、支持來源以及因素的 SPSS 分析，得到友誼壓力才能更好地預測慢性病，以及配偶、親子和友誼關係的支持和壓力能預測幸福感的結論。這一部分透過分析與整理資料，因此我認為屬於敘述型分析。

同時，此項結論也可以做為六至八年內預測慢性病與幸福感的方式，因此我也認為這項分析屬於預測型分析。

**4. 友誼能在預測晚年健康和幸福的方面發揮更大的作用，主要是因為與朋友的互動源於選擇與選擇性，保持友誼能最大化幸福。而選擇性地將家庭關係消除自生活中是十分困難的。**

我認為這項分析是診斷型分析。作者透過引用他人的論文，找出友誼是如何影響健康、幸福與慢性病，因此我認為是診斷型分析。

# Reference

William J. Chopik. (2017). Associations among relational values, support, health, and well-being across the adult lifespan. Personal Relationships, 24 (2017), 408–422. doi: 10.1111

https://www.almendron.com/tribuna/wp-content/uploads/2018/02/chopik2017pr.pdf