

Appendix

All unique analyses in the articles “Perfectionism Across Adolescence,” “Parental Influence on Adolescent Perfectionism,” “Perfectionism’s Influence on Adolescent Mental Health,” and “Religion and Perfectionism” were conducted by Justin Dyer. Details of the data collection and analysis are contained in this appendix. All code and detailed outputs are available from Justin Dyer upon request.

Sample

The unique analyses in this issue (in the four articles mentioned above) were conducted with the “Family Foundations of Youth Development” data (“Foundations”). The information on the sample is primarily drawn from the Foundations website (foundations.byu.edu). There are currently four waves of data collection in the Foundations project. At each wave of data collection, those who participated previously were invited to participate again, and new participants were recruited. Surveys at each wave took between thirty-five and fifty-five minutes to complete. Given Latter-day Saints are underrepresented in the research literature, they were oversampled.

The first wave of data was collected in the summer of 2016 and consisted of youth in Utah and one of the child’s parents. To obtain a random sample, the national research company InfoUSA (now called “Data Axel”) was utilized. This company collects information from publicly available sources to identify U.S. households and their characteristics. Their database contains over eighty million households, and the information is regularly

updated. This company is not associated with Brigham Young University or The Church of Jesus Christ of Latter-day Saints.

In Wave 1, the contact information for ten thousand households with children between the ages of twelve and fourteen in Utah were randomly selected from InfoUSA's database. Recruitment letters were sent to these ten thousand potential participants, and they were also contacted by phone. Each letter contained a unique code that participants used on the Foundations website to complete the survey. Although InfoUSA's information regarding families was mostly reliable, we found it inaccurate regarding household composition (that is, no child between the ages of twelve and fourteen) in at least 10% of the cases. However, of those households that were found to be eligible, just over 60% participated. Youth were given twenty dollars in Amazon.com credit to complete the survey, and parents were given thirty dollars in Amazon.com credit.

Throughout the four waves of data collection, we had several participants ask if their other family or friends could participate. In each instance, the answer was "no." Although this would have simplified recruiting, to obtain a random sample, households could participate only if they had been randomly selected through the InfoUSA database. Thus, "snowball" sampling was not allowed. However, it is useful to be able to conduct within-household analyses—that is, examine how children in the same household may be affected differently by parenting. Thus, if a household was randomly selected, any youth who met the age criteria could participate. In analyses, appropriate statistical methods for handling households with multiple participants were employed.

In total, 638 families participated in Wave 1. Youth ages ranged from eleven to fifteen (some youth just under twelve or just over fifteen took the survey). Regarding religion, 86.2% of the youth identified as Latter-day Saint, 4.3% as Catholic, 3.3% as atheist/agnostic, and 6.2% identified as another religion. Regarding income, 27% of households made \$75,000 or less, another 22.8% made between \$75,000 and \$100,000, and 50.2% of households made more than \$100,000. Racially, 88.1% of youth identified as White, 5.8% identified as Hispanic, 3.7% identified as a combination of races, and the rest identified as other races (for example, Black, Asian, and so forth).

The second wave of data collection occurred in 2018. Those who had been surveyed at the first wave were recruited to participate again in the second wave. Additional participants were recruited from Utah to increase the diversity within the Utah sample. A sample was also recruited from Arizona because it is similar to Utah in several respects,

though with a substantially lower proportion of Latter-day Saints. The new families recruited from Utah and Arizona in this second wave were recruited using the InfoUSA national database. The selection criterion for households was those having a child between the ages of twelve and sixteen. The age at this wave was increased from the first wave to be comparable to Wave 1 participants from Utah. The youth were compensated thirty dollars in Amazon.com credit, and the parents were compensated forty dollars in Amazon.com credit. Over 80% of those who participated in Wave 1 participated again in Wave 2. In Utah, an additional 187 families were recruited. In Arizona, 689 families participated. The total sample at Wave 2 was 1,396 families (a parent and a child).

The sample at Wave 2 became more religiously diverse: 62.9% Latter-day Saint, 8.6% Catholic, 9.3% Protestant, 8.4% believing in God but not affiliated with a religion, 7.4% atheist/agnostic, and 3.4% of other religions. The Wave 2 sample remained mostly the same in terms of race and income. In terms of income, 28.4% made less than \$75,000, 22.4% made between \$75,000 and \$100,000, and the rest (49.2%) made over \$100,000. Regarding race, 81.3% were White, 7.12% Hispanic, 7% identifying as a combination of races, 1.8% Black, 1.7% Asian American, and 1.2% identifying as other races.

Wave 3 was conducted in the summer of 2020, as COVID-19 lockdowns were underway. This afforded an important opportunity to examine how the pandemic influenced individuals. Those who had been in either of the previous two waves were recruited to participate again.¹ In Wave 3, both parent and child received a thirty-dollar Amazon.com gift code for participating. In total, 1,226 families from Utah and Arizona participated in Wave 3. Of youth who participated in Wave 2, 87.9% participated in Wave 3.

In Wave 3, 62.3% identified as Latter-day Saint, 7.4% as Protestant, 7.1% as Catholic, 11.6% as atheist/agnostic, 8.8% as believing in God but not part of a religion, and 2.9% of other religions. For income, 23.1% made less than \$75,000, 20.8% made between \$75,000 and \$100,000, and 56.2% made over \$100,000. Regarding race, 83.4% were White, 5.2% Hispanic, 1.5% Black, .98% Asian American, 7.4% a combination of races, and 1.2% of other races.

1. At this wave, a sample from California was also recruited. However, given we have only two waves of data on these youth, we limit the current analyses to Wave 2 through 4, using only the Arizona and Utah samples.

Wave 4 was conducted in the summer of 2022. All those who were interviewed in prior waves were recruited to participate in Wave 4. In Wave 4, both parent and child received a twenty-dollar Amazon.com gift code for participating. In total, 1,015 families participated in Wave 4 (again, this is just using the Arizona and Utah samples). For children, the retention rate over these four years was 72.9%, and for parents it was 72.1%.

In Wave 4, 52.2% of the youth identified at Latter-day Saint, 8.7% as Protestant, 6.2% as Catholic, 17.2% as atheist/agnostic, 11.9% as believing in God but not part of a religion, and 3.8% of other religions. For income, 18.2% made less than \$75,000, 17.7% made between \$75,000 and \$100,000, and 64.2% made over \$100,000. Regarding race, 79.2% were White, 6.8% Hispanic, 1.9% Black, 2.3% Asian American, 8.8% a combination of races, and 1.0% of other races.

Dyer, “Perfectionism Across Adolescence”

Figure 1

Figure 1 (p. 36) is derived from a latent variable growth curve of 1,609 adolescents from the Family Foundations of Youth Development data when they were ages twelve, fourteen, sixteen, and eighteen. The model was fit in the statistical modeling computer program Mplus 8.10. Data were rearranged based on the age at which they took the survey, reconfiguring to an accelerated longitudinal design.² Each individual is missing at least one time point, though those missing data are missing completely at random and should not bias results since Full Information Maximum Likelihood was used to handle the missing data.³ This model contains growth curves for both discrepancy and socially prescribed perfectionism. The data fit the model acceptably with a CFI of .964, though the RMSEA was somewhat poor at .099.

The intercept for discrepancy perfectionism was 3.36 with a slope of .21 ($p < .001$), and the intercept for socially prescribed perfectionism was 3.33 with a slope of .20 ($p < .001$). In other words, both discrepancy and socially prescribed perfectionism significantly increased over time.

2. For more on statistical methods and models used to analyze relationships between variables over time, see Todd D. Little, *Longitudinal Structural Equation Modeling*, 2nd ed. (Guilford Press, 2024).

3. For more on the FIML estimation technique, see Craig K. Enders, *Applied Missing Data Analysis*, 2nd ed. (Guilford Press, 2022).

The variances of the slopes and intercepts were also significant (all at $p < .001$).

Figure 2

Results from growth mixture modeling were used to create figure 2 (p. 37). Two growth mixture models were estimated in Mplus 8.10, one for socially prescribed perfectionism and another for discrepancy perfectionism. For socially prescribed perfectionism, model fit continued to improve from one to five classes. However, after a large improvement in fit from the one to two class and the two to three class, there was relatively little improvement in model fit, suggesting the three-class solution may fit the data best. Entropy was acceptable for the three-class solution (.68) with interpretable classes: high perfectionism (20% of the sample), mid-perfectionism (53% of the sample), low perfectionism (28% of the sample).

For the discrepancy model, model fit improved from one to three classes. However, the four-class solution did not converge with unsolvable issues. The three-class solution had acceptable entropy (.73) with interpretable classes: high perfectionism (18% of the sample), mid-perfectionism (48% of the sample), low perfectionism (34% of the sample). This three-class solution showed convergent validity with the socially prescribed three-class solution (the correlation was .81 between the two). The three-class solution was chosen as the final discrepancy model.

Figure 3

Figure 3 (p. 38) shows the classifications we used for levels of discrepancy and socially prescribed perfectionism.

Erickson, Forsberg, and Schmidt, "Parental Influence on Adolescent Perfectionism"

Table 1 contains results from a multinomial logistic regression with the low child perfectionisms as the baseline. This regression was used to calculate the predicted probabilities reported in the article.

Table 1. Results from Multinomial Logistic Regression

	Low v. Mid Perfectionism	Low v. High Perfectionism
<i>Constant</i>		
Female	-5.72	-16.72**
Male	-4.06	-8.50
<i>Parent Discrepancy Perfectionism</i>		
Female	-0.09	-0.08
Male	0.09	0.62*
<i>Parent Socially Prescribed Perfectionism</i>		
Female	0.32	0.40
Male	-0.02	0.07
<i>Mother Psychological Control</i>		
Female	1.71	2.25*
Male	1.56*	1.59
<i>Father Psychological Control</i>		
Female	0.29	2.20*
Male	-0.09	0.89
<i>Mother Warmth</i>		
Female	-0.43	-0.75
Male	0.11	-0.33
<i>Father Warmth</i>		
Female	-0.32	-0.13
Male	-0.12	0.49
<i>Mother Verbal Hostility</i>		
Female	0.20	0.11
Male	-0.29	0.05
<i>Father Verbal Hostility</i>		
Female	0	0.19
Male	0.27	0.85

	Low v. Mid Perfectionism	Low v. High Perfectionism
<i>Parent Anxiety</i>		
Female	0.73	0.23
Male	0.14	-0.65
<i>Parental Conflict</i>		
Female	1.10	-0.07
Male	2.65	1.94
<i>Family Rigidity</i>		
Female	0.47	1.58*
Male	0.86	0.02
<i>Family Chaos</i>		
Female	0.83*	1.08*
Male	0.67	1.31*
<i>Family Flexibility</i>		
Female	-0.47	-0.74
Male	-0.02	-1.02
<i>Family Disengagement</i>		
Female	0.60	1.23*
Male	1.44**	1.55*
<i>Child Age</i>		
Female	0.03	0.36
Male	-0.60**	-0.45
<i>Primarily Parent Mother</i>		
Female	0.90	0.43
Male	-0.36	-0.70
<i>Parent Income</i>		
Female	-0.02	-0.01
Male	-0.06	0.09
<i>Utah</i>		
Female	-0.68*	-0.40
Male	0.35	1.14*

* p < .05. ** p < .01. *** p < .001.

Ogletree, "Perfectionism's Influence on Adolescent Mental Health"

Table 2 on the following page contains detailed results (standardized) of cross-lagged models that appear in figures 1–3 of Ogletree's article. These analyses were conducted in Mplus 8.10 and controlled for adolescent gender, parent income, and whether the adolescent lived in Utah or Arizona (controls not displayed but details available from Justin Dyer).

Figure 4 was created from a regression predicting whether the participant had ever seriously considered suicide by Wave 4 (1 = had considered suicide, 0 = had not considered suicide; $n = 693$). This logistic regression was conducted in Stata (statistical software for data science) and controlled for adolescent gender, parent income, and whether the adolescent lived in Utah or Arizona. Multiple imputation with twenty imputations was used to handle missing data.

Figure 5 was generated from a multinomial logistic regression predicting four categories of pornography use: 0 = *never*, 1 = *less than once a month*, 2 = *once a month to less than once a week*, 3 = *once a week or more*. State, gender, and income were examined. The number of observations was 1,058. Imputed data was not used for this analysis as data for pornography use was highly skewed and imputations varied widely. This, therefore, represents the raw unimputed data.

Table 2. Detailed Standardized Results for Figures 1–3 of "Perfectionism's Influence on Adolescent Mental Health"

		Discrepancy				Socially Prescribed			
		12	14	16	18	12	14	16	18
		B(se)	B(se)	B(se)	B(se)	B(se)	B(se)	B(se)	B(se)
<i>Anxiety</i>									
12		.01(.05)				.11(.05)*			
14		.05(.05)	.06(.03)*			-.03(.05)	.03(.03)		
16		.06(.03)*		.08(.04)*			.11(.03)***		.09(.04)*
18			.08(.03)*					.07(.03)*	
$\chi^2(df)/CFI/RMSEA$		31.13(6)***/.989/.073			40.95(4)*/.984/.087				
<i>Depression</i>									
12		.14(.06)*				.16(.05)***			
14		.06(.05)	.08(.03)*			-.03(.04)	.05(.03)		
16		.12(.03)**		.03(.04)			.10(.03)***		.08(.04)*
18			.09(.04)*					.09(.04)***	
$\chi^2(df)/CFI/RMSEA$		18.74(6)*/.994/.052			25.48(6)***/.989/.065				
<i>Low Self-Worth</i>									
12		.22(.05)***				.19(.06)***			
14		.03(.05)	.07(.04)*			-.04(.05)		-.01(.04)	
16		.11(.04)***		.15(.04)***			.05(.03)		.13(.04)***
18			.02(.04)					.06(.03)	
$\chi^2(df)/CFI/RMSEA$		8.32(6)*/.999/.022			15.17(6)*/.995/.044				

* p < .05. ** p < .01. *** p < .001.

Goodman, "Religion and Perfectionism"

Figure 1 of Goodman's article is the predicted probabilities from a multinomial logistic regression after controlling for state, gender, and family income. Significant differences across religion are the result of pairwise comparisons of those predicted probabilities. Figure 2 is predicted probabilities from a logistic regression predicting whether a teen would disaffiliate between an average age of fourteen (Wave 2) and eighteen (Wave 4). This analysis includes only those who had data at these two waves and who were Latter-day Saints at Wave 2 ($n = 522$) and controls for gender, state, and income. Given it was highly predictive of both perfectionism and disaffiliation, whether the teen was a sexual and gender minority at Wave 4 was also controlled. Logistic regression results are in table 3.

Table 3. Predictors of Disaffiliation Between Wave 2 and Wave 4 ($n = 522$)

Independent Variables	Odds-Ratio
<i>Perfectionism (base low risk)</i>	
Mid Risk	1.96 ^t
High Risk	4.14**
Gender (base female)	2.01*
State (Arizona baseline)	0.75
Sexual and Gender Minority	10.74*
Income	0.92 ^t
Constant	0.08***

^t $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$

Figures 3 and 4 are marginal means from a multilevel regression predicting discrepancy and socially prescribed perfectionism, respectively. Independent variables were year (2018, 2020, 2022), disaffiliation between Wave 2 (2018) and Wave 4 (2022), gender, income, state, and whether the teen was a sexual or gender minority at Wave 4. To allow for nonlinear change over time, the year was also specified as a nominal variable. This is essentially a multilevel growth curve with a nominal slope. This "slope" does not represent change over time; rather, it represents the difference of each time point to a base time point—in this case, Wave 2 is the baseline time point. Similar to predicting a linear slope in a growth curve model, an interaction between year and disaffiliation

was specified to examine whether the shape of change across the three waves differed by whether the individual had disaffiliated. If the interaction was significant, it was kept. If it was not significant, it was dropped. Table 4 displays multilevel regression results for discrepancy and socially prescribed perfectionism.

Table 4. Predictors of Perfectionisms Across Time

<i>Independent Variables</i>	Discrepancy <i>Coefficient</i>	Socially Prescribed <i>Coefficient</i>
<i>Year</i> (2018 baseline)		
2020	0.31***	0.31***
2022	0.45***	0.48***
Disaffiliated	0.35**	0.43**
<i>Year X Disaffiliate Interaction</i>		
2020 X Disaffiliated		0.01
2022 X Disaffiliated		-0.42**
Gender (female baseline)	-0.28**	-0.31***
Parent Income	-0.01	0.00
State (Arizona baseline)	0.01	0.09
Sexual and Gender Minority	0.46***	0.31*
Constant	3.51***	3.45***

* p < .05. ** p < .01. *** p < .001.

For discrepancy perfectionism, the interaction between year and disaffiliation was not significant, indicating that individuals followed the same trajectory over time whether or not they disaffiliated. However, those who did disaffiliate had higher levels of discrepancy perfectionism throughout; that is, there was a significant effect on discrepancy perfectionism, but this effect did not vary by wave—similar to an effect on the intercept of a growth curve but not on the slope. The interaction was significant for socially prescribed perfectionisms with those who disaffiliated higher on socially prescribed perfectionism in 2018 and 2020 but not in 2022.

Cross-lagged models are reported in tables 5, 6, and 7. Cross-lagged models for salience are not reported, given there were not significant cross-lagged effects.

Table 5. Detailed Results for Figures 5, 6, and 8 of "Religion and Perfectionism"

		Discrepancy				Socially Prescribed			
		12	14	16	18	12	14	16	18
		B(se)	B(se)	B(se)	B(se)	B(se)	B(se)	B(se)	B(se)
<i>External Regulation</i>									
12		.00(.06)				-.03(.05)			
14		.07(.05)		-.00(.03)		.17(.05)*		.00(.03)	
16			.01(.04)		.01(.04)		-.01(.03)		.03(.03)
18				.11(.04)**			.18(.04)**		
$\chi^2(df)/CFI/RMSEA$		17.81(10)/ .993/.032			26.31(10)**/.985/.046				
<i>Introjected Regulation</i>									
12			.16(.11)			.11(.05)*			
14			-.01(.03)		-.00(.06)		.02(.05)		.00(.03)
16				.03(.02)		.08(.05)		-.01(.03)	
18					.04(.02)			.13(.04)**	
$\chi^2(df)/CFI/RMSEA$		21.63(11)*/.991/.035			24.88(12)*/.989/.037				
<i>Identified Motivation</i>									
12				.05(.05)			.08(.05)		
14				-.04(.06)		.01(.03)		.07(.03)*	
16					-.07(.03)*		.02(.04)		-.01(.03)
18						-.06(.03)		-.08(.04)*	
$\chi^2(df)/CFI/RMSEA$		24.86(10)**/.988/.044							

* p < .05. ** p < .01. *** p < .001.

Table 6. Detailed Results for Figures 11, 13, and 14 of "Religion and Perfectionism"

		Discrepancy				Socially Prescribed			
		12	14	16	18	12	14	16	18
		B(se)	B(se)	B(se)	B(se)	B(se)	B(se)	B(se)	B(se)
<i>Legalism</i>		.06(.13)				.02(.06)			
12									
14		.03(.03)		.03(.07)		.12(.06)		-.03(.03)	
16			.02(.02)		.01(.07)		.07(.03)*		.05(.03)
18				.02(.02)				.08(.04)*	
$\chi^2(df)/CFI/RMSEA$		33.16(10)***/.981/.055				37.60(10)***/.977/.060			
<hr/>									
<i>Negative Religious Coping</i>									
12		.13(.05)*					.11(.05)*		
14			.09(.04)*		.07(.03)*			.06(.04)	
16				.06(.03)		-.06(.04)			.01(.03)
18					.08(.03)*			.09(.03)*	
$\chi^2(df)/CFI/RMSEA$		33.42(10)***/.983/.055				49.07(11)/.971/.067			
<hr/>									
<i>Positive Religious Coping</i>									
12			.01(.05)					.038(.05)	
14				.00(.05)		.04(.03)		-.04(.05)	
16					-.02(.03)		-.01(.04)		-.01(.03)
18						-.07(.03)***			-.08(.03)***
$\chi^2(df)/CFI/RMSEA$									39.25(11)***/.983/.057

* p < .05. ** p < .01. *** p < .001.

Table 7. Detailed Results for Figures 15 and 17 of "Religion and Perfectionism"

		Discrepancy				Socially Prescribed			
		12	14	16	18	12	14	16	18
		B(se)	B(se)	B(se)	B(se)	B(se)	B(se)	B(se)	B(se)
Secure Attachment									
12		-.24(.35)					.19(.33)		
14		-.01(.01)		.15(.17)		-.01(.01)		.42(.17)*	
16			-.02(.01)**		.24(.17)		-.01(.01)		.06(.19)
18				-.02(.01)*				-.03(.01)***	
$\chi^2(df)/CFI/RMSEA$		45.20(10)***/.977/.067				48.15(11)***/.975/.066			
Church Attendance									
12			.03(.05)					.02(.05)	
14			-.05(.05)		.02(.03)		-.03(.06)		.06(.03)
16				-.05(.04)		-.01(.04)		-.03(.04)	
18					-.09(.04)*				.01(.04)
$\chi^2(df)/CFI/RMSEA$		32.14(12)***/.975/.046				25.87(11)***/.982/.042			

* p < .05. ** p < .01. *** p < .001.

The conclusion of Goodman's article discusses a logistic regression with the dependent variable being whether or not the individual was categorized as high in perfectionism (high in both discrepancy and socially prescribed perfectionism). All religious constructs used in previous cross-lagged models were included as predictors. This logistic regression was conducted in Mplus 8.10 and included the following as predictors: dummy variables for all denominations (Latter-day Saint as the omitted category), religious motivations (externalized, introjected, identified), religious salience, legalism, negative coping, positive coping, church attendance, secure attachment to God, gender (male or female), parent income, and state (Utah or Arizona). These variables are all from Wave 2 except religious affiliation, which is from Wave 4 so as to capture whether a participant left their religion. Sample size for this analysis was 1,609. Table 8 contains odds-ratio results for this model.

Table 8. Logistic Regression Predicting Being Classified as High in Perfectionism

High Perfectionism	
<i>Independent Variables</i>	<i>Odds-Ratio</i>
<i>Religious Affiliation</i> (Latter-day Saint baseline)	
Other Christian	1.12
No Religion, Believe in God	0.92
Atheist/Agnostic	1.38
Other Religion	0.60
Former Latter-day Saint	2.85*
Former Other Religion	1.93
<i>Religious Motivations</i>	
External	1.07
Introjected	2.03*
Identified	1.02
Religious Salience	0.95
Legalism	1.12
Negative Coping	6.37*
Positive Coping	1.05
Church Attendance	0.97
Secure Attachment	0.51
Gender (female baseline)	0.41*
Parent Income	1.01
State (Arizona Baseline)	1.35

* p < .05. ** p < .01. *** p < .001.