Chapter 9: Predicting Deconversion: Concurrent and Cross-time Correlations in Three Samples

Heinz Streib

Job Chen

Abstract. This chapter presents results about one of the questions that our research has focused from the beginning: religious change and deconversion. While in the Deconversion Study (2001-2005) we could use only cross-sectional data to estimate characteristics of deconverts in the U.S.A. and Germany, the analyses reported in this chapter are based on repeated surveys in three waves that allow the identification of concurrent and cross-time correlations—thus, open perspectives on the prediction of deconversion. Results indicate that, with difference between the three waves however, deconversion concurrently may correlate positively with *openness to experience* and negatively with *consciousness*, it may correlate also with *mysticism* and show concurrent correlations with *truth of texts and teachings* and self-rated religiosity. Cross-time correlations indicated as (negative) predictors of deconversion: self-rated religiosity, *extraversion*, *agreeableness*, *environmental mastery*, *positive relations with others*, *purpose in life*, *self-acceptance*, *interpretive mysticism*, and *truth of texts and teachings*. We conclude that low scores on variables for religiosity and religious cognition, but also personality and well-being variable that call for emotional compensation are predictors of deconversion.

Keywords: deconversion; disaffiliation; leaving religion; religious change

Introduction

Our Bielefeld-Chattanooga research has focused from the beginning on religious change. A great beginning was the Deconversion Study (2001-2005; Streib et al., 2009) with a mixed-methods design combining narrative and faith development interviews with a comprehensive questionnaire to investigate characteristics of deconverts in the U.S.A. and Germany. In the meantime, we could collect more data and this chapter is based on three additional samples: the Spirituality Study (Streib & Hood, 2016) and two more waves for the longitudinal study of faith development. Now, these new three-wave data can be used to analyze concurrent and cross-wave correlations that opens perspectives on the prediction of deconversion.

As summarized by Streib (2021) and by Steppacher et al. (2021), the study of deconversion is an emerging field in psychology, and the contributions to the literature gradually increased in the recent years. Most interesting for this chapter are results about the prediction of deconversion.

From a psychological perspective it would be impressive, when deconversion could be explained by personality traits such as the five factor model (Costa & McCrae, 1985). Some contributions have explored the predicting role of the five personality factors on deconversion. Saroglou et al. (2020) report results from their study in Belgium that investigated religiosity, spirituality, personality, and values of deconverts in comparison with non-religious and socialized religious respondents. Their findings include that higher *neuroticism*, opposition to the value of conservation, and search for autonomy are characteristics for exiters. These results are reflected in Hui et al.'s (2018) longitudinal study of Christians in China who deconverted within a 3-year time frame. Their results indicate that low *emotional stability* (*neuroticism*, reversed) predicted deconversion, while the other five personality factors did not. Stronge et al. (2020) have used a representative national sample of

New Zealand adults (2009–2017) to analyze, using piecewise latent growth models, longitudinal change in the five personality traits and in honesty-humility before and after conversion or deconversion ($N = 540$ converts, $N = 886$ deconverts). The researchers observed no personality changes before conversion or after deconversion; but their result regarding *deconverts* demonstrate an increase in honesty-humility and a decrease in *agreeableness* preceding deconversion. Our report from the Bielefeld-Chattanooga Study on Deconversion (Streib et al., 2009) presented, for deconverts, considerably higher *openness to experience*, and, for German deconverts, lower scores on all big five personality factors; and, also for the German deconverts, lower ratings on the Ryff-Scale factors of *environmental mastery*, *positive relations with others*, *purpose in life*, and *self-acceptance*. We may conclude that deconversion research so far, including our own previous results from the Deconversion Study (Streib et al., 2009), has produced not really convergent results regarding the prediction of deconversion using the five personality factors.

Values are another set of potential predictors that are taken into consideration. Schwartz's (Bilsky et al., 2011) Portrait Values Questionnaire (PVQ) has been included in studies about deconverts (Hui et al., 2018; Hui et al., 2015; Saroglou et al., 2020). From their longitudinal research with Chinese deconverts, Hui et al. (2018; 2015) conclude that "faith exit is predicted by the values of self-direction, stimulation, hedonism, achievement, and power." Correspondingly, Saroglou et al. (2020) report that deconverts have lower scores on conservation values such as security, conformity, tradition.

Finally, attachment has been recently included as lens for understanding conversion and deconversion. Greenwald et al.'s (2018) study demonstrates the benefits of including attachment theory in the study of deconversion. Attachment-related variations (attachment anxiety; avoidance) and their relation to religious change themes (compensation, exploration, socialization) open perspectives on individual differences: attachment anxiety is associated

with emotional compensation, and compensation themes are associated with lower well-being at present and a heightened link between attachment anxiety and distress, while attachment security is less related to compensation themes, but rather open for the exploration of new ideas.

This study takes up the thread of this previous research, including our own findings from the Deconversion Project (Streib et al., 2009), to add to the literature another contribution that is based on three samples which allow the analysis of concurrent and cross-time correlations—and, with the latter, yield new perspectives on the prediction of deconversion. Thereby, this study will engage in an open exploration of all possible variables in our data.

Method

Participants

While in the Deconversion Study (Streib et al., 2009) we could use only cross-sectional data to estimate characteristics of deconverts in the U.S.A. and Germany, the analyses reported in this chapter are based on in three additional samples: the sample of the Spirituality Study (Streib & Hood, 2016) that are the Wave 1 data in this study, and two more waves for the longitudinal study of faith development. Table 1 presents the basic information about these three samples. For more detailed description of these samples, see the Appendix in this book; in addition, there is most detailed information in the key publications (Streib & Hood, 2016; Streib et al., 2021).

Table 1. Brief Description of the Three Samples Used in This Study

	Name	Sample size for concurrent analyses	Core time of questionnaire participations	Key publications
Wave 1	Spirituality Study	<i>n</i> = 1806	2010 - 2011	(Streib & Hood, 2016)
Wave 2	Longitudinal I	<i>n</i> = 310	2015 - 2016	(Streib et al., 2021)
Wave 3	Longitudinal II	<i>n</i> = 176	2019 - 2020	

Not all participants in Wave 2 and Wave 3 are longitudinal cases, which is due to the fact that waves 2 and 3 are primarily limited to the participants who also agreed to a faith development interview, and we could of course not successfully invite 100% of the interviewees from the previous wave; also we have a number of new participants in each new wave. Therefore, cases included in Wave 1 – Wave 2 cross-wave analyses are $n = 264$, cases included in Wave 1 – Wave 3 cross-wave analyses are $n = 155$, and cases included in Wave 2 – Wave 3 cross-wave analyses are $n = 142$.

Measures

Demographics included age, gender, country, and education that was calculated according to ISCED (Unesco Institute for Statistics, 2006) standards and then dichotomized in non-tertiary and tertiary education. Self-rated religiosity and spirituality were assessed on a 5-point scale. The five personality factors were assessed by the NEO-FFI (Costa & McCrae, 1985) that was used in all three waves consistently. For psychological well-being, we used the Ryff-Scales for Psychological Well-being and Growth (Ryff, 1989; Ryff & Singer, 1996). For the assessment of mysticism, Hood's (1975) Mysticism Scale was used. Generativity was measured by the Loyola Generativity Scale (McAdams & de St Aubin, 1992). In Wave 2 and Wave 3 we also used Budner's (1962) Intolerance of Ambiguity Scale, the Need for Cognition Scale (Cacioppo et al., 1984), and the items used in the Religion Monitor (2013) for the assessment of fundamentalism and pluralism. For more detailed information about measures, see the Appendix in this book.

Results

Concurrent Correlations with Deconversion

In a first step, the concurrent correlations within the data of each wave were analyzed using logistic regression with self-reported deconversion in the same wave as the outcome variable. Table 2 presents results from three logistic regression models (Wave1, Wave 2, and Wave 3) using all independent variables that could possibly predict self-reported deconversion at the same wave. Thus, the table shows the concurrent correlations between personality variables and deconversion within the three waves.

Attending generally to the significant results, we begin with the basic demographics: Table 1 shows that *age* correlates with deconversion in Wave 1 ($OR = 1.02$, 95%CI: 1.01-1.03) and Wave 3 ($OR = 1.04$, 95%CI: 1.00-1.08) with a relatively small effect, however. This may indicate that the older the participants, the more time they had to experience a deconversion, but it could also indicate that the older generation is more inclined to deconversion. Also, being *male* clearly correlates with deconversion at Wave 1 ($OR = 1.27$, 95%CI: 1.01-1.60) and Wave 3 ($OR = 3.12$, 95%CI: 1.20-8.84). Finally, *country* correlates with self-reported deconversion, but with mixed effect in Wave 1 and Wave 3: Germans in the Wave 1 sample have a considerably higher chance of reporting deconversion ($OR = 1.84$, 95%CI: 1.44-2.37), while Germans in the Wave 3 sample appear to have considerably lower chance ($OR = 0.17$, 95%CI: 0.03-0.89).

Also, the concurrent correlations of the big five personality factors with deconversion show mixed results: At Wave 1 deconversion related positively to *openness to experience* ($OR = 1.54$ (95%CI: 1.18-2.02), and negatively to *conscientiousness* ($OR = 0.65$ (95%CI: 0.51-0.82). However, at Wave 2 and Wave 3 it is only *agreeableness* that, *positively*, correlates with deconversion ($OR = 2.62$, 95%CI: 1.29-5.47 and $OR = 3.83$, 95%CI: 1.19-13.36,

respectively). Both *intolerance of ambiguity* and *need for cognition* have *negative* relation with deconversion at Wave 3, which is counter-intuitive for *need for cognition*.¹

For mystical experiences concurrent effects with deconversion were indicated only for Wave 1. Here, all three M-Scale factors were significant, with *introvertive mysticism* positively ($OR = 1.21$, 95%CI: 1.01-1.46), *extrovertive mysticism* negatively ($OR = 0.77$, 95%CI: 0.65-0.92), and *interpretation of mysticism* positively ($OR = 1.30$, 95%CI: 1.03-1.63) relating to self-reported deconversion.

Finally, we attend to the variables with specific information about religiosity and religious cognition. The self-rating of being religious is the single variable that negatively correlated with deconversion: in Wave 1 ($OR = 0.88$, 95%CI: 0.80-0.97), Wave 2 ($OR = 0.62$, 95%CI: 0.47-0.82), and Wave 3 ($OR = 0.40$, 95%CI: 0.25-0.62). From the subscales of the RSS, *truth of texts and teachings* concurrently correlated with deconversion in Wave 1, which was negative as expected ($OR = 0.74$, 95%CI: 0.65-0.85). *Fairness, tolerance and rational choice* had a positive concurrent correlation with deconversion in Wave 1 ($OR = 1.27$, 95%CI: 1.01-1.59).

¹ Closer inspection of the model revealed that *agreeableness* and *need for cognition* flipped the sign due to the inclusion gender and education as control variables. This could possibly be due to the tendency that women are more agreeable, and the more educated people are, the higher their need for cognition.

Table 2. Concurrent correlations of self-reported deconversion and personality variables in three waves

Deconversion	Wave 1 (<i>n</i> = 1807) <i>OR</i> [95% CI]	Wave 2 (<i>n</i> = 310) <i>OR</i> [95% CI]	Wave 3 (<i>n</i> = 176) <i>OR</i> [95% CI]
Demographics			
Age	1.02*** [1.01, 1.03]	1.01 [0.98, 1.03]	1.04* [1.00, 1.08]
Gender (Male)	1.27* [1.01, 1.60]	1.27 [0.70, 2.34]	3.12* [1.20, 8.84]
Country (Germany)	1.84*** [1.44, 2.37]	0.56 [0.22, 1.40]	0.17* [0.03, 0.89]
Education (Tertiary)	0.93 [0.75, 1.16]	1.42 [0.79, 2.59]	1.62 [0.64, 4.27]
Self-Rated Religious	0.88* [0.80, 0.97]	0.62*** [0.47, 0.82]	0.40*** [0.25, 0.62]
Self-Rated Spiritual	0.93 [0.84, 1.04]	1.14 [0.87, 1.51]	0.98 [0.62, 1.59]
Five Factor Personality			
Neuroticism	0.90 [0.70, 1.15]	1.28 [0.66, 2.50]	1.46 [0.56, 3.92]
Extraversion	0.77 [0.60, 1.00]	0.59 [0.29, 1.19]	0.75 [0.25, 2.19]
Openness to Experience	1.54** [1.18, 2.02]	1.37 [0.62, 3.06]	2.40 [0.60, 10.07]
Agreeableness	1.21 [0.92, 1.60]	2.62** [1.29, 5.47]	3.83* [1.19, 13.36]
Conscientiousness	0.65*** [0.51, 0.82]	0.71 [0.38, 1.32]	0.92 [0.38, 2.21]
Psychological Wellbeing			
Autonomy	1.08 [0.86, 1.37]	1.10 [0.53, 2.31]	0.76 [0.24, 2.34]
Environmental Mastery	0.84 [0.62, 1.12]	1.69 [0.74, 3.90]	1.13 [0.38, 3.51]
Personal Growth	1.33 [0.98, 1.80]	1.64 [0.78, 3.50]	2.02 [0.54, 7.87]
Positive Relations	0.84 [0.65, 1.09]	0.62 [0.28, 1.34]	0.62 [0.18, 2.06]
Purpose in Life	1.14 [0.89, 1.47]	1.18 [0.62, 2.27]	0.72 [0.28, 1.79]
Self-Acceptance	1.17 [0.89, 1.55]	0.66 [0.31, 1.38]	0.85 [0.28, 2.49]
Mysticism			
Introvertive Mysticism	1.21* [1.01, 1.46]	1.11 [0.70, 1.76]	1.53 [0.90, 2.71]
Extrovertive Mysticism	0.77** [0.65, 0.92]	1.04 [0.69, 1.56]	0.86 [0.51, 1.45]
Interpretive Mysticism	1.30* [1.03, 1.63]	1.16 [0.68, 1.98]	1.50 [0.76, 3.02]
Religious Schema			
Truth of text teachings	0.74*** [0.65, 0.85]	0.70 [0.44, 1.10]	1.00 [0.53, 1.89]
Fairness tolerance ration	1.27* [1.01, 1.59]	0.81 [0.42, 1.55]	0.45 [0.11, 1.72]
Xenosophia	0.97 [0.83, 1.13]	0.93 [0.57, 1.51]	0.85 [0.40, 1.80]
Generativity	1.10 [0.79, 1.53]	1.24 [0.55, 2.84]	1.04 [0.26, 4.38]
Intolerance of Ambiguity		1.38 [0.54, 3.55]	0.17* [0.04, 0.73]
Need for Cognition		0.56 [0.22, 1.41]	0.17* [0.03, 0.80]
Fundamentalism		0.78 [0.49, 1.23]	0.90 [0.47, 1.68]
Pluralism		0.82 [0.56, 1.18]	0.78 [0.42, 1.44]

Note. Each column represents a model. Logistic regressions entered all predictor variables simultaneously in the same model. Each regression had the predictor variables and outcome variable measured at the same wave.

Reference group of the outcome variable deconversion is non-deconvert. *OR* = odds ratio. An *OR* > 1 indicates that the variable is associated with a higher chance of deconversion. An *OR* < 1 indicates that the variable is associated with a lower chance of deconversion. * $p < .05$, ** $p < .01$, *** $p < .001$.

Cross-wave Predictions of Deconversion

Analyzing the cross-wave correlations opens the perspective on predicting self-reported deconversion. Results are presented in Table 3, where each row represents a separate logistic regression model. In the first two columns, each regression included the predictor variables measured at Wave 1, controlled for age, gender, country, education, and for baseline deconversion. Outcome variable was either deconversion at Wave 2 (first column), or deconversion at Wave 3 (second column). In the third column, each regression included the predictors measured at Wave 2 and outcome deconversion at Wave 3, and controlled for baseline predictor at Wave 1, in addition to all other covariates in the models presented in the first two column.

Starting with the big five personality factors, only *extraversion* and *agreeableness* measured in Wave 1 show a predicting effect on deconversion reported at a later wave; other factors of the big five such as *openness to experience* or *neuroticism* were not significant. *Extraversion* at Wave 1 negatively predicts deconversion at Wave 2 ($OR = 0.56$, 95%CI: 0.34-0.89) and at Wave 3 ($OR = 0.51$, 95%CI: 0.25-0.98). And agreeableness at Wave 1 negatively predicts deconversion at Wave 3 ($OR = 0.38$, 95%CI: 0.16-0.88).

All variables in Ryff's (1989; Ryff & Singer, 1996) Psychological Well-being and Growth Scale that reached significance are *negative* predictors for deconversion. And interestingly, the well-being factors at Wave 1 unfold their effect on deconversion at Wave 3: Self-reported deconversion at Wave 3 is predicted by lower *environmental mastery* ($OR = 0.51$, 95%CI: 0.28-0.89), lower *positive relations with others* ($OR = 0.38$, 95%CI: 0.18-0.74), and lower *purpose in life* ($OR = 0.48$, 95%CI: 0.25-0.88). Also, deconversion at Wave 3 is predicted by lower *self-acceptance* at Wave 2 ($OR = 0.41$, 95%CI: 0.18-0.89).

Table 3. Cross-wave predictions of Wave 1 personality on self-reported deconversion at Wave 2 (column 1), deconversion at Wave 3 (column 2), and predictions of Wave 2 personality on deconversion at Wave 3.

Predictors	Wave 1 predicting Wave 2 deconversion (<i>n</i> = 264) <i>OR</i> [95% <i>CI</i>]	Wave 1 predicting Wave 3 deconversion (<i>n</i> = 155) <i>OR</i> [95% <i>CI</i>]	Wave 2 predicting Wave 3 deconversion (<i>n</i> = 142) <i>OR</i> [95% <i>CI</i>]
Self-Rated Religious	0.65*** [0.53, 0.78]	0.58*** [0.44, 0.75]	0.43** [0.25, 0.72]
Self-Rated Spiritual	1.03 [0.86, 1.23]	0.91 [0.69, 1.17]	1.08 [0.70, 1.67]
Five Factor Personality			
Neuroticism	1.15 [0.80, 1.67]	1.71 [1.01, 3.02]	2.04 [0.89, 4.91]
Extraversion	0.56* [0.34, 0.89]	0.51* [0.25, 0.98]	0.50 [0.16, 1.53]
Openness to Experience	1.21 [0.68, 2.15]	1.07 [0.48, 2.32]	1.68 [0.45, 6.29]
Agreeableness	1.03 [0.58, 1.84]	0.38* [0.16, 0.88]	1.78 [0.58, 5.47]
Conscientiousness	1.11 [0.7, 1.77]	0.57 [0.28, 1.12]	1.06 [0.36, 3.01]
Psychological Wellbeing			
Autonomy	1.14 [0.69, 1.87]	1.09 [0.56, 2.12]	0.65 [0.23, 1.84]
Environmental Mastery	0.82 [0.55, 1.22]	0.51* [0.28, 0.89]	0.61 [0.26, 1.38]
Personal Growth	0.93 [0.54, 1.60]	0.97 [0.43, 2.12]	0.70 [0.25, 1.90]
Positive Relations	0.68 [0.44, 1.06]	0.38** [0.18, 0.74]	0.86 [0.33, 2.16]
Purpose in Life	0.74 [0.48, 1.12]	0.48* [0.25, 0.88]	0.59 [0.23, 1.43]
Self-Acceptance	0.79 [0.54, 1.15]	0.60 [0.33, 1.04]	0.41* [0.18, 0.89]
Mysticism			
Introvertive Mysticism	0.84 [0.65, 1.09]	0.75 [0.52, 1.08]	0.81 [0.44, 1.47]
Extrovertive Mysticism	0.84 [0.67, 1.05]	0.76 [0.54, 1.04]	0.95 [0.49, 1.79]
Interpretive Mysticism	0.74* [0.54, 0.99]	0.56** [0.35, 0.86]	0.87 [0.38, 1.99]
Religious Schema			
Truth of text teachings	0.62*** [0.48, 0.80]	0.63** [0.45, 0.88]	0.80 [0.45, 1.39]
Fairness tolerance ration	0.87 [0.46, 1.65]	0.53 [0.20, 1.34]	0.96 [0.40, 2.30]
Xenosophia	0.94 [0.69, 1.28]	0.87 [0.56, 1.32]	0.75 [0.36, 1.53]
Generativity	0.72 [0.37, 1.39]	0.48 [0.18, 1.24]	0.90 [0.21, 3.82]
Intolerance of Ambiguity			0.74 [0.28, 1.97]
Need for Cognition			0.56 [0.20, 1.54]
Fundamentalism			0.64 [0.40, 1.01]
Pluralism			0.81 [0.57, 1.14]

Note. Each row represents a separate logistic regression model. In the first two columns, each regression included the predictor measured at Wave 1, controlled for age, gender, country, and education measured at Wave 1, and controlled for baseline deconversion measured at Wave 1. Outcome variable was either deconversion at Wave 2 (first column), or deconversion at Wave 3 (second column). In the third column, each regression included the predictor measured at Wave 2 and outcome deconversion at Wave 3, and controlled for baseline predictor at Wave 1, in addition to all other covariates in the first two column models. The baseline Wave 1 predictor was not controlled for the last 4 variables due to unavailability. Reference group of the outcome variable deconversion is non-deconvert. * $p < .05$, ** $p < .01$, *** $p < .001$.

From the Mysticism-Scale (Hood, 1975), neither *introvertive mysticism* nor *extrovertive mysticism* were significant, but only the third factor, *interpretive mysticism* at Wave 1 predicted, however negatively, deconversion at Wave 2 ($OR = 0.74$, 95%CI: 0.54-0.99) and Wave 3 ($OR = 0.56$, 95%CI: 0.35-0.86).

From the Religious Schemata Scale (Streib et al., 2010), the subscale *truth of texts and teachings* negatively predicted deconversion at Wave 2 ($OR = 0.62$, 95%CI: 0.48-0.80) and deconversion at Wave 3 ($OR = 0.63$, 95%CI: 0.45-0.88). The two other subscales, *fairness, tolerance and rational choice* and *xenosophia/inter-religious dialog* were not significant in predicting deconversion.

Finally, self-rated religiosity was the only, again *negative*, predictor for deconversion in all three waves: low self-rating as religious at Wave 1 predicted deconversion at Wave 2 ($OR = 0.65$, 95%CI: 0.53-0.78) and at Wave 3 ($OR = 0.58$, 95%CI: 0.44-0.75); low self-rating as religious at Wave 2 predicted deconversion at Wave 3 ($OR = 0.43$, 95%CI: 0.25-0.72).

To test the robustness of the significant effects, we also performed a sensitivity analysis on the significant effects. The e-values for effect estimates are the minimum strength of association that an unmeasured confounder would need to have with both the predictor and the outcome variable to fully explain away the observed effect, after accounting for the measured covariates (VanderWeele & Ding, 2017). A rough rule of thumb agreed by epidemiologists is that a e-value over 4 would indicate that the effect is robust against alternative explanations. The significant predictors including the odds ratio and the e-value is summarized in Table 4.

In predicting Wave 2 deconversion, people of high self-rated religiousness ($OR = 0.65$, e-value = 2.46), *extraversion* ($OR = 0.56$, e-value = 2.99), *interpretive mysticism* ($OR = 0.74$, e-

value = 2.06), and *truth of text and teachings* ($OR = 0.62$, e-value = 2.59) were less likely to deconvert.

Table 4. Summary of Predictors of Self-rated Deconversion

Predictors for Deconversion	<i>OR</i>	e-value
Predictors for deconversion at Wave 2		
<i>self-rating as religious</i> (Wave 1)	0.65***	2.46
<i>extraversion</i> (Wave 1)	0.56*	2.99
<i>interpretive mysticism</i> (Wave 1)	0.74*	2.06
<i>truth of texts and teachings</i> (Wave 1)	0.62***	2.59
Predictors for deconversion at Wave 3		
<i>self-rating as religious</i> (Wave 1)	0.58***	2.83
<i>extraversion</i> (Wave 1)	0.51*	3.35
<i>agreeableness</i> (Wave 1)	0.38*	4.69
<i>environmental mastery</i> (Wave 1)	0.51*	3.35
<i>positive relations with others</i> (Wave 1)	0.38**	4.75
<i>purpose in life</i> (Wave 1)	0.48*	3.56
<i>interpretive mysticism</i> (Wave 1)	0.56**	2.97
<i>truth of texts and teachings</i> (Wave 1)	0.63**	2.53
Predictors for deconversion at Wave 3		
<i>self-rating as religious</i> (Wave 2)	0.43**	4.07
<i>self-acceptance</i> (Wave 2)	0.41*	4.35

Note. OR = odds ratio. All OR values are taken from Table 2. The e-values for effect estimates are the minimum strength of association that an unmeasured confounder would need to have with both the predictor and the outcome variable to fully explain away the observed effect, after accounting for the measured covariates (VanderWeele & Ding, 2017). A rough rule of thumb agreed by epidemiologists is that a e-value over 4 would indicate that the effect is robust against alternative explanations. * $p < .05$, ** $p < .01$, *** $p < .001$.

In predicting Wave 3 deconversion, people of high self-rated religiosity ($OR = 0.58$, e-value = 2.83), *extraversion* ($OR = 0.51$, e-value = 3.35), *agreeableness* ($OR = 0.38$, e-value = 4.69), *environmental mastery* ($OR = 0.51$, e-value = 3.35), *positive relations with others* ($OR = 0.38$, e-value = 4.75), *purpose in life* ($OR = 0.48$, e-value = 3.56), *interpretive mysticism* ($OR = 0.56$, e-value = 2.97), and *truth of text and teachings* ($OR = 0.63$, e-value = 2.53) were less likely to deconvert.

The most rigorous test of prediction is presented in the third column of Table 3 and third block in Table 4. Those predictions not only controlled for the baseline deconversion but the controlled for the baseline predictors. People of high self-rated religiousness ($OR = 0.43$, e-value = 4.07) and *self-acceptance* ($OR = 0.41$, e-value = 4.35) were less likely to deconvert.

The predictors for self-reported deconversion in our three-wave data that are summarized in Table 4 can be divided into two groups: a) predictors of personality and personal well-being, and b) self-reported religiosity and religious cognition. Further, as Table 4 shows, all predictors are *negative*. This means that a) lower *extraversion*, lower *agreeableness*, and/or lower ratings on various *well-being factors*, and b) lower self-rated religiosity, lower agreement to the *truth of text and teachings*, and lower *interpretive mysticism* are among the predictors for deconversion at a subsequent time of measurement.

Discussion

The summarized results of this study may confirm, but also refute, findings from our own previous Deconversion Study (Streib et al., 2009) and findings from other contributions to the study of deconversion that were noted in the Introduction of this chapter.

Comparison of Results with the Deconversion Study

The report from the Bielefeld-Chattanooga Study on Deconversion (Streib et al., 2009) noted, for deconverts, considerably higher *openness to experience*, and, for German deconverts, lower scores on all big five personality factors (whereby *neuroticism* was reverse scored as *emotional stability*); and, also for the German deconverts, lower ratings on the Ryff-Scale factors of *environmental mastery*, *positive relations with others*, *purpose in life*, and *self-acceptance*.

Further, deconverts were characterized by higher self-identification as “more spiritual than religious.”

The clearly higher concurrent *openness to experience* has continued also in the Wave 1 data collected in the Bielefeld-Chattanooga Study on the Semantics of Spirituality (Streib & Hood, 2016), as documented in this study (see Table 1). However, what has emerged as significant concurrent correlation, does not necessarily become successful as predictor for deconversion reported at a later time. This is true for *openness to experience*, which, according to the results of this study, did not predict deconversion at all. This calls the assumption into question that deconversion is a function of the personality trait of *openness to experience*. However, (lower) *extraversion* did emerge as significant predictor for deconversion at Wave2 and Wave 3, and (lower) *agreeableness* for deconversion at Wave 3. This finding may support the assumption that personality has had an influence on deconversion: A highly extraverted person with eventually high agreeableness may have a considerably lower chance for deconversion at a later time.

The clearly lower well-being scores that were reported for the (German) deconverts in the Deconversion Study (Streib et al., 2009) were not continued in the later waves of our research: None of the Ryff-Scale factors did concurrently correlate with deconversion (see Table 2). Thus, the Deconversion Study findings may be unique to this sample gathered 2002-2005 and including a substantial portion of deconverts from high tension groups. Anyway, looking at the prediction of deconversion, it is surprising that certain factors of the well-being scale were significant. This changes the basic assumption that well-being is only to be regarded as outcome; This study documents predicting effects of well-being factors, when (low) *environmental*

mastery, positive relations with others, and purpose in life at Wave 1 predict deconversion at Wave 3, and when (low) *self-acceptance* at Wave 2 predicts deconversion at Wave 3.

Finally, deconverts in the Deconversion Study were characterized by higher self-identification as “more spiritual than religious.” In this study, however, self-rated spirituality did not have any effect, neither concurrently, nor cross-wave. Instead, only self-rated religiosity has emerged as the variable with most consistent and powerful concurrent and cross-wave correlations with deconversion. The difference can partly be explained with the selection of variables: while the four-option item including “more spiritual than religious” was used in the Deconversion Study, the two self-ratings for religiosity and spirituality were used in this study. Thus, results from this study would translate in the prime role of the “neither religious nor spiritual” self-identification. The results from this study thus account for, and point to, the most effective correlate and predictor for deconversion—which is (low) religiosity.

Discussion of Results in Relation to Other Previous Research

One of the consensual results in the deconversion research literature regarding the prediction of deconversion is the effect of *neuroticism* (or reversed: *emotional stability*). This is reported in the studies of Saroglou et al. (2020) and in the longitudinal study of Hui et al. (2018), but not confirmed by the study of Stronge et al. (2020). The study reported in this chapter confirms Stronge et al.’s (2020) findings regarding the insignificance of *emotional stability*—which was not significant, neither concurrently, nor cross-wave.

Regarding *openness to experience* the Deconversion Study appears even more unique with its findings of strong correlations with deconversion, since not only this study, but also a series of other studies show no effect of *openness to experience* on deconversion (see Streib,

2021). This is different for *agreeableness*, however: Our finding that *agreeableness* at Wave 1 has strong ($OR = 0.38$) and powerful ($e\text{-value} = 4.69$) predicting effect on deconversion at Wave 3, clearly corresponds with Stronge et al.'s (2020) findings that lower scores for agreeableness were a significant predictor of deconversion in their longitudinal New Zealand sample.

Regarding well-being, the findings from extant research are rather incoherent and in part contradictory. While our findings of lower well-being scores for (German) deconverts in the Deconversion Study (Streib et al., 2009) could be interpreted as signs of a crisis, other research such as Nica's (2019) study of exiters from Christian fundamentalist groups indicate improved well-being after deconversion. Also, Hui et al.'s (2018, p. 116) study of Chinese deconverts concludes that "changes in psychological well-being are not identical for all faith exiters," but "for some, leaving the religion is psychologically beneficial; for others, leaving the religion has just the opposite consequence."

An explanation is offered by the study of Greenwald et al. (2018) who were the first to systematically study deconversion and reversion with an attachment perspective. Especially their distinction between two developmental pathways, "emotional compensation" and "exploration," can be related to the results in this study: By the strong role of (low ratings on) the personality factor of *extraversion* and the strong role of various well-being factors (such as *environmental mastery*, *positive relations with others*, *purpose in life*, and *self-acceptance*), the findings in this study would suggest a central role of the *compensation pathway*, while the exploration pathway was stronger in the foreground in the original Deconversion Study (Streib et al., 2009). Thus, an explanation for the less favorable well-being is offered by Greenwald et al. (2018): lower well-being may be associated with attachment anxiety, and this association is stronger in deconversions on the compensation pathway.

Conclusion

It is one of the main findings of this study that deconversion dovetails with low self-rating for religiosity, (the interpretation of) mystical experience, and low scores on the religious schemata, especially on the subscale *truth of text and teachings*. Before these findings are dismissed as self-evident and uninteresting, it should be taken into account that the predictive, cross-wave correlations document that rejection or low appraisal for aspects of religiosity were there *five or ten years before* the deconversion has taken place. This is confirmation for the criteria that Streib & Keller (2004) have established for deconversion: loss of religious experiences, intellectual doubt, moral criticism, emotional suffering, and disaffiliation from the community. The results of this study suggest that four of these five criteria, or eventually only part of them, had been characteristics of people *years before* they actually experience the religious change that they will report as deconversion in the questionnaire. Our results are thus generally well understood in light of Hui et al.' (2018) conclusions, which suggest that changes in beliefs and values might have begun long before the actual faith exit, whereas personality change, if any, might take a long time after the transition.

An unexpected finding in this study was that lower well-being may contribute to the disposition for later deconversion. In predicting deconversion, certain factors of the well-being scale were significant. Thus, this study documents that (low) *environmental mastery*, *positive relations with others*, and *purpose in life* at Wave 1 predict deconversion at Wave 3, and (low) *self-acceptance* at Wave 2 predicts deconversion at Wave 3. Further, (low) *extraversion* has emerged as predictor for deconversion at Wave 2 and Wave 3. This not only calls into question the basic assumption that well-being is only to be regarded as outcome, but may reflect the

predicting effect of low *emotional stability* as documented in previous research (Hui et al., 2018; Saroglou et al., 2020). In conclusion, this may suggest that, in our three waves after the initial Deconversion Study, there was a kind a paradigm change from the exploration model to the compensation model (according to Greenwald et al., 2018).

References

- Bilsky, W., Janik, M., & Schwartz, S. H. (2011). The Structural Organization of Human Values-Evidence from Three Rounds of the European Social Survey (ESS). *Journal of Cross-Cultural Psychology*, 42(5), 759-776. <https://doi.org/10.1177/0022022110362757>
- Budner, S. (1962). Intolerance of ambiguity as a personality variable. *Journal of Personality*, 30(1), 29-50. <https://doi.org/10.1111/j.1467-6494.1962.tb02303.x>
- Cacioppo, J. T., Petty, R. E., & Kao, C. F. (1984). The Efficient Assessment of Need for Cognition. *Journal of Personality Assessment*, 48(3), 306-307.
- Costa, P. T., & McCrae, R. R. (1985). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor-Inventory (NEO-FFI)*. Professional Manual. Psychological Assessment Resources 1992.
- Greenwald, Y., Mikulincer, M., Granqvist, P., & Shaver, P. R. (2018). Apostasy and Conversion: Attachment Orientations and Individual Differences in the Process of Religious Change. *Psychology of Religion and Spirituality, online-first*. <https://doi.org/10.1037/rel0000239>
- Hood, R. W. (1975). The Construction and Preliminary Validation of a Measure of Reported Mystical Experience. *Journal for the Scientific Study of Religion*, 14, 29-41.
- Hui, C. H., Cheung, S.-H., Lam, J., Lau, E. Y. Y., Cheung, S.-F., & Yuliawati, L. (2018). Psychological changes during faith exit: A three-year prospective study. *Psychology of Religion and Spirituality*, 10(2), 103-118. <https://doi.org/10.1037/rel0000157>

- Hui, C. H., Lau, E. Y. Y., Lam, J., Cheung, S. F., & Lau, W. W. F. (2015). Psychological predictors of Chinese Christians' church attendance and religious steadfastness: A three-wave prospective study. *Psychology of Religion and Spirituality*, 7(3), 250-264. <https://doi.org/10.1037/a0039216>
- McAdams, D. P., & de St Aubin, E. D. (1992). A Theory of Generativity and Its Assessment Through Self-Report, Behavioral Acts, and Narrative Themes in Autobiography. *Journal of Adult Development*, 62, 1003-1015. <https://doi.org/10.1037/0022-3514.62.6.1003>
- Monitor, R. (2013). *Religion Monitor 2012 [machine-readable data file]* Bertelsmann Foundation.
- Nica, A. (2019). Exiters of religious fundamentalism: reconstruction of social support and relationships related to well-being. *Mental Health, Religion & Culture*, 22(5), 543-556. <https://doi.org/10.1080/13674676.2019.1636015>
- Ryff, C. D. (1989). Happiness is Everything, or Is It? Explorations on the Meaning of Psychological Well-Being. *Journal of Personality and Social Psychology*, 57(6), 1069-1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Ryff, C. D., & Singer, B. H. (1996). Psychological Well-Being: Meaning, Measurement, and Implications for Psychotherapy Research. *Psychotherapy and Psychosomatics*, 65(1), 14-23. <https://doi.org/10.1159/000289026>
- Saroglou, V., Karim, M., & Day, J. M. (2020). Personality and values of deconverts: a function of current nonbelief or prior religious socialisation? *Mental Health, Religion & Culture*, 23(2), 139-152. <https://doi.org/10.1080/13674676.2020.1737922>
- Steppacher, A., Streib, H., Bullik, R., & Keller, B. (2021). Recent Research on Deconversion. In H. Streib, B. Keller, R. Bullik, A. Steppacher, C. F. Silver, M. Durham, S. B. Barker, & R. W. Hood Jr (Eds.), *Deconversion Revisited. Biographical Studies and Psychometric Analyses Ten Years Later*. Vandenhoeck & Ruprecht.
- Streib, H. (2021). Leaving Religion: Deconversion. *Current Opinion in Psychology*, 40, 139-144. <https://doi.org/10.1016/j.copsyc.2020.09.007> (10.31234/osf.io/r46qt)

- Streib, H., & Hood, R. W. (Eds.). (2016). *Semantics and Psychology of Spirituality. A Cross-cultural Analysis*. Springer International Publishing Switzerland. <https://doi.org/10.1007/978-3-319-21245-6>.
- Streib, H., Hood, R. W., Keller, B., Csöff, R.-M., & Silver, C. (2009). *Deconversion. Qualitative and Quantitative Results from Cross-Cultural Research in Germany and the United States of America*. Vandenhoeck & Ruprecht. <https://doi.org/10.13109/9783666604393>
- Streib, H., Hood, R. W., & Klein, C. (2010). The Religious Schema Scale: Construction and Initial Validation of a Quantitative Measure for Religious Styles. *International Journal for the Psychology of Religion*, 20(3), 151-172. <https://doi.org/10.1080/10508619.2010.481223>
- Streib, H., & Keller, B. (2004). The Variety of Deconversion Experiences: Contours of a Concept in Respect to Empirical Research. *Archive for the Psychology of Religion*, 26(1), 181-200. <https://doi.org/10.1163/0084672053598030>
- Streib, H., Keller, B., Bullik, R., Steppacher, A., Silver, C. F., Durham, M., Barker, S. B., & Hood Jr, R. W. (2021). *Deconversion Revisited. Biographical Studies and Psychometric Analyses Ten Years Later*. Vandenhoeck & Ruprecht.
- Stronge, S., Bulbulia, J., Davis, D. E., & Sibley, C. G. (2020). Religion and the Development of Character: Personality Changes Before and After Religious Conversion and Deconversion. *Social Psychological and Personality Science*, Article 1948550620942381. <https://doi.org/10.1177/1948550620942381>
- Unesco_Institute_for_Statistics. (2006). *International Standard Classification of Education (ISCED 1997)*. UNESCO Institute for Statistics. http://www.uis.unesco.org/TEMPLATE/pdf/isced/ISCED_A.pdf
- VanderWeele, T. J., & Ding, P. (2017). Sensitivity Analysis in Observational Research: Introducing the E-Value. *Ann Intern Med*, 167(4), 268-274. <https://doi.org/10.7326/m16-2607>