

## RESEARCH ARTICLE OPEN ACCESS

# Forgiveness in Poland: Rye Forgiveness Scale Adaptation and Its Longitudinal Impact on Mental Health in HIV-Positive Individuals

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## ABSTRACT

Within psychological research, the concept of forgiveness has gained recognition for its potential impact on health, underlining the need for culturally adapted assessment tools and longitudinal studies to substantiate its effects. In this two-phase research project, we initially adapted the Rye Forgiveness Scale (RFS) to measure state forgiveness in the Polish context with 740 participants. Reliability analysis and confirmatory factor analysis confirmed the RFS's structure and internal consistency (absence of negative  $\alpha = 0.87$ , presence of positive  $\alpha = 0.86$ , full scale  $\alpha = 0.84$ ). Positive associations with other measures of forgiveness, religiosity, connection to nature, and mental well-being validated the scale's efficacy. The second phase evaluated the impact of state forgiveness on the mental health of 214 HIV-positive Polish individuals across three 6-month intervals. Utilizing the stress-and-coping model, this phase investigated forgiveness as a protective factor against negative mental health outcomes. The findings indicated that forgiveness could positively influence mental health, underscoring its importance in promoting well-being among vulnerable groups. This research provides a culturally validated tool for measuring forgiveness and illuminates its health benefits, emphasizing its significance for diverse populations.

Forgiveness, once primarily the domain of religion and philosophy, has captured the interest of psychological researchers since the late twentieth century. While traditional psychological inquiry often emphasized the study of negative behaviors and attitudes like aggression, stress, and conflict, the emergence of positive psychology has redirected this focus toward nurturing beneficial constructs such as forgiveness, love, and tolerance (Seligman 2019). Defined as a process that facilitates the release of negative emotions like resentment and hostility and encourages the adoption of positive attitudes such as empathy and love toward the offender (Enright, Freedman, and Rique 1998), forgiveness is vital for prosocial behavior and maintaining healthy interpersonal relationships (McCullough, Worthington, and Rachal 1997).

Understanding the nuances of state and dispositional forgiveness is essential for comprehending how forgiveness operates within individuals. State forgiveness, described as the process by which an individual forgives on a specific occasion for a specific transgression, is situational and ephemeral, fluctuating with changing emotions and circumstances (Rye et al. 2001). In contrast, dispositional forgiveness is characterized as a general tendency to forgive across situations and time, representing a stable trait that signifies an inherent inclination to forgive regardless of the particulars of the offense (Berry et al. 2005). Evidence suggests that the ability of dispositional forgiveness to predict state forgiveness is moderate, especially in cases involving genuine transgressions (Koutsos, Wertheim, and Kornblum 2008; Stackhouse 2019), leading to a growing focus

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on state forgiveness in recent research for its relevance in specific offenses and situational dynamics.

The stress-and-coping model of forgiveness, introduced by Worthington and Scherer (2004) and expanded upon by Strelan (2020), Toussaint, Webb and Hirsch (2017), and Webb and Toussaint (2018), is a pivotal framework that explains how forgiveness promotes health. It theorizes that forgiveness is an adaptive coping mechanism that reinterprets negative perceptions of an offense into neutral or positive ones, thus alleviating stress-induced physiological and psychological distress and fostering health resilience (Worthington 2020). This reevaluation is crucial for emotional regulation, minimizing rumination, and encouraging positive emotional states, serving as a protective buffer against the harmful effects associated with unforgiveness (Harris and Thoresen 2007; Ingersoll-Dayton, Torges, and Krause 2010; Jones Ross, Boon, and Stackhouse 2018; Worthington, Berry, and Parrott 2001).

Empirical studies have highlighted the health benefits of forgiveness, demonstrating significant reductions in anxiety, depression, and stress; improvements in mental well-being and cardiovascular health; and decreases in stress biomarkers (Gall and Bilodeau 2021; Harris et al. 2006; Skalski et al. 2022; Skalski-Bednarz and Toussaint 2024; Toussaint et al. 2014; Toussaint, Shields, and Slavich 2016). Additionally, forgiveness is often linked with religiosity, a connection likely rooted in religious doctrines that extol forgiveness as a moral imperative, thus motivating followers to embrace forgiveness (Davis et al. 2012; Rye 2007). Furthermore, evidence suggests that more forgiving individuals tend to engage in altruistic acts, deepening their connection with the wider community and the environment. This broader sense of belonging enhances individual well-being and inspires environmentally friendly practices (Surzykiewicz et al. 2023). On the flip side, unforgiveness, marked by enduring bitterness, anger, and resentment, can adversely affect health, notably among those with chronic conditions such as HIV (Toussaint et al. 2023). In this setting, the significance of forgiveness is underscored. It alleviates the harmful impact of unforgiveness directed at possible sources of transmission of HIV and reduces the self-blame linked to the infection, thereby promoting emotional recovery and improving overall well-being. This crucial aspect of forgiveness can lead to improved health outcomes and quality of life for those affected by HIV through mechanisms such as stress reduction and depression alleviation (Hua 2012; Temoshok and Wald 2005; Toussaint et al. 2014; Wald and Temoshok 2004). Conversely, unforgiveness, characterized by persistent bitterness, anger, and resentment, negatively impacts health, especially in individuals with chronic conditions such as HIV (Lestari et al. 2018; Nkomo and Kufankomwe 2020; Skalski-Bednarz et al. 2024b; Skalski-Bednarz, Toussaint, and Surzykiewicz 2024; Mudgal and Tiwari 2015; Toussaint et al. 2023). By addressing the unique psychological and social challenges faced by HIV-positive individuals, forgiveness can foster resilience and promote health-enhancing behaviors.

Nevertheless, longitudinal studies are necessary to affirm the long-term health benefits of forgiveness in vulnerable populations conclusively. Such research is vital for validating the lasting impacts of forgiveness interventions on health outcomes

in HIV-positive individuals, emphasizing the need for targeted approaches that leverage forgiveness to improve well-being over time.

## 1 | Adaptation of the Rye Forgiveness Scale (RFS)

Since existing evidence on the health benefits of forgiveness predominantly originates from studies within American populations (Fehr, Gelfand, and Nag 2010; Rasmussen et al. 2019; Wade et al. 2014), this research aims to explore the cultural universality of forgiveness by focusing on the Polish demographic. To this end, the Rye Forgiveness Scale (RFS; 2001) has been adapted to suit the Polish cultural milieu. Poland already hosts adaptations of scales for assessing dispositional forgiveness, such as the Heartland Forgiveness Scale (Mróz, Kaleta, and Guzewicz 2016; Thompson et al. 2005) and the Toussaint Forgiveness Scale (TFS) (Charzyńska and Heszen 2013; Toussaint et al. 2001), yet these adaptations exhibit significant structural modifications due to cultural variances. For example, the Polish iteration of the Heartland Forgiveness Scale markedly differs from its original form, and the Polish version of the Toussaint Scale notably excludes the “seeking forgiveness” subscale. Despite the presence of these scales, the nuanced phenomenon of forgiveness, particularly in the wake of actual transgressions, necessitates an emphasis on episodic states of forgiveness. Consequently, studies in Poland utilize the Decisional Forgiveness Scale (DFS; Hook et al. 2012; Mróz, Kaleta, and Sołtys 2022) to assess the cognitive decision to forgive and the Emotional Forgiveness Scale (EFS; Davis et al. 2015; Mróz, Kaleta, and Sołtys 2022) to assess the emotional process of overcoming negative emotions. Local adaptation of the State Self-Forgiveness Scale (Mróz and Sornat 2021; Wohl, DeShea, and Wahkinney 2008) also exists but is specifically tailored to self-forgiveness. The RFS (Rye et al. 2001) emerges as an essential instrument in the psychological evaluation of forgiveness, offering an in-depth analysis of this complex construct through the lens of cognitive, emotional, and behavioral responses to offenses. Its holistic methodology facilitates a profound comprehension of forgiveness's multifaceted nature. Although originally devised for English-speaking audiences, adapting the RFS for the Polish context promises to augment the toolkit for examining forgiveness in Poland, complementing existing measures with a sophisticated tool designed to capture the intricate dynamics of forgiveness experiences among the Polish populace.

The RFS (Rye et al. 2001) presents a valuable methodology for assessing forgiveness, offering a comprehensive examination of this complex construct. Tailored to evaluate responses to specific transgressions across diverse contexts, the RFS utilizes self-report measures to capture the perspectives of individuals who have experienced wrongdoing. It defines forgiveness by amalgamating the absence of negative reactions such as hostility or vengeful ideation with the presence of positive responses such as empathy and compassion toward the offender (Rye et al. 2001). This dual-component framework enhances our comprehension of forgiveness, bridging traditional and contemporary theoretical viewpoints (Worthington 2020). Empirical validation of the RFS, conducted through factor analyses, reliability assessments, and correlations with related constructs,

confirms its robust psychometric properties and practical applicability (Rye et al. 2001). Its consistent structural integrity in adaptations for diverse cultural milieus, as evidenced by its Iranian (Rezaei, Arfa, and Rezaei 2020) and Turkish (Ulus and Aksoy 2017) versions, underscores its broad cross-cultural relevance. Customizing the RFS for the Polish context facilitates a deeper exploration of forgiveness dynamics within Poland, considering the unique cultural and individual challenges encountered in this setting.

## 2 | Current Study

In this two-phase research project, the initial study focuses on adapting the RFS (Rye et al. 2001) for the Polish context, engaging participants from the general population. We anticipate positive correlations between RFS scores and other measures of state and dispositional forgiveness, as well as religiosity, connection to nature, and mental well-being indicators, establishing a strong foundation for validation. The subsequent study investigates the link between state forgiveness and negative mental health outcomes in HIV-positive individuals through a three-part longitudinal study with 6-month intervals. It is important to note that this vulnerable group might face particular challenges in forgiving, attributed to the ways in which HIV is transmitted (Skalski-Bednarski et al. 2024b). By employing the stress-and-coping model of forgiveness (Worthington and Scherer 2004) as our theoretical framework, we aim to deepen the exploration of this relationship beyond the predominantly American context present in the literature (Fehr, Gelfand, and Nag 2010; Rasmussen et al. 2019; Wade et al. 2014). Our hypothesis is that an initial state of forgiveness in the first wave may inversely predict subsequent negative mental health outcomes in the second wave; similarly, levels of forgiveness in the second wave may inversely predict negative mental health outcomes in the third wave, thereby exploring the role of forgiveness as a protective psychological factor within this population. Additionally, by employing a cross-lagged approach (e.g., Lüdtke and Robitzsch 2022) in our analytical model, we incorporate bidirectional paths from mental health to forgiveness to examine potential reciprocal causal effects.

## 3 | Methods

### 3.1 | Participants and Procedure

The study was approved by the ethics committee of the affiliated university. It began with a sample of 740 Polish individuals, ages ranging from 18 to 68 years ( $M = 35.1$ ,  $SD = 9.2$ ). Gender distribution was composed of 48% cisgender women, 49% cisgender men, 1% transgender women, and 2% transgender men. As for religious beliefs, 72% were Christian and 28% had no religious affiliation. Before participating, all individuals provided informed consent. The study imposed no specific eligibility criteria for participation. Data collection took place in fall 2022, utilizing the Prolific survey platform. Participants' responses were gathered via Google Forms and subsequently anonymized in a summary spreadsheet that excluded any identifying information. The survey included four

questionnaires to assess levels of forgiveness, mental well-being, and connection to nature, the entire process averaging 15 min. Before filling out the questionnaires, participants were asked to reflect on occasions where they had been wronged by someone else (identified as the offender). For their time, participants were compensated GBP 2.50.

A subsequent study among HIV-positive individuals was conducted over three waves, spaced 6 months apart, spanning from 2023 to 2024. A longitudinal follow-up study was carried out in three waves, each separated by 6 months, from 2023 to 2024. This phase included patients from HIV care provider clinics situated in major Polish cities, including Krakow, Warsaw, Wroclaw, and Chorzow. The sole inclusion criterion was a verified diagnosis of HIV. After obtaining informed consent, participants completed anonymous paper-and-pencil questionnaires alongside their attending physician during regular consultations. The date of the initial survey was documented in each participant's medical record, subsequent surveys being distributed every 6 months at follow-up visits. Participants were assigned a pseudonymous ID to ensure anonymity across the surveys. Participants did not receive compensation for their involvement in this study. This stage of the research maintained a retention rate of 47%, focusing on data from 217 individuals aged between 20 and 35 years ( $M = 26.2$ ,  $SD = 3.1$ ). The gender breakdown was 75% cisgender men and 25% cisgender women. Regarding religious affiliations, 59% identified as Christian and 41% reported having no religious affiliation. All participants were on antiretroviral (ARV) therapy and were in good and stable health, with CD4+ levels above  $350/\mu\text{L}$ , indicating a relatively healthy immune system since CD4+ cells are crucial for immune function and serve as a marker of immune health in HIV-positive individuals (Girard et al. 2013). Throughout the study, participants maintained an undetectable viral load. The study protocol entailed completing questionnaires designed to measure state forgiveness and negative mental health indicators. Before completing the questionnaires, participants were instructed to think of an individual who may have been the source of their HIV transmission. Each questionnaire took approximately 5 min to complete.

### 3.2 | Measures

In the present study, a Polish adaptation of the RFS (Rye et al. 2001) was examined. The RFS is designed to quantitatively assess forgiveness toward a specific offender using 15-items with each item rated on a Likert scale. This scale comprises two subscales: the absence of negative subscale, which measures the reduction or absence of negative feelings toward the offender, and the presence of positive subscale, which evaluates the emergence of positive feelings toward the offender. Items on the absence of negative subscale, such as "I can't stop thinking about how I was wronged by this person" (reverse-scored) and "I have been able to let go of my anger toward the person who wronged me," aim to capture a decrease in the respondent's negative emotions. Conversely, items on the presence of positive subscale, like "I wish for good things to happen to the person who wronged me" and "If I encountered the person who wronged me, I would feel at peace," are intended to gauge the presence of positive sentiments toward the offender.

Respondents indicated their level of agreement with each statement using a 5-point scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), to reflect their emotional and cognitive responses to being wronged. Validation of the scale by Rye et al. (2001) revealed adequate internal consistency, with Cronbach's  $\alpha$  coefficients of 0.86 for the absence of negative subscale and 0.85 for the presence of positive subscale. Additionally, the scale demonstrated satisfactory test-retest reliability with a coefficient of 0.76 for both subscales over a mean interval of 15.2 days, supporting its use in assessing forgiveness within a college-aged population. The RFS facilitates a comprehensive evaluation of forgiveness by measuring both the decline in negative reactions and the cultivation of positive attitudes toward the offender. For the purposes of cross-cultural research, the original RFS was translated into Polish by three bilingual translators. The study's authors then refined these initial translations to produce a definitive Polish version of the scale. This version was then retranslated back into English by a different trio of translators and reviewed by a native English speaker, proficient in Polish, to ensure its accuracy. Any discrepancies between the original RFS and the retranslated version were carefully reviewed, resolved, and validated by the authors of the current study. This rigorous translation process followed the guidelines for cross-cultural research established by Sousa and Rojjanasrirat (2011), with the original English version serving as the foundational text.

The Toussaint Forgiveness Scale (TFS; Toussaint et al. 2001), in its Polish adaptation (Charzyńska and Heszen 2013), was used to measure forgiveness of others, self-forgiveness, and perceived forgiveness by God. It comprised nine items divided among three subscales to evaluate dispositional forgiveness: forgiveness of others ( $\alpha = 0.74$ ), self-forgiveness ( $\alpha = 0.65$ ), and forgiveness by God ( $\alpha = 0.91$ ). A representative item was: "I have forgiven those who have hurt me." Respondents indicated their level of agreement with each item on a 5-point Likert scale, from 1 (*strongly disagree*) to 5 (*strongly agree*).

The Emotional Forgiveness Scale (EFS; Hook et al. 2012), in its Polish version (Mróz, Kaleta, and Sołtys 2022), was employed to assess emotional episodic forgiveness using eight items. Participants rated each item on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*), assessing both positive feelings toward the offender and a reduction in negative feelings stemming from the incident. An example item was: "I am no longer troubled by thoughts of them." The scale's reliability was demonstrated by a Cronbach's  $\alpha$  of 0.75.

The Decision to Forgive Scale (DTFS; Davis et al. 2015), in its Polish adaptation (Mróz, Kaleta, and Sołtys 2022), was utilized to evaluate decisional episodic forgiveness using 5 items. Responses were provided on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). For example, one item stated: "I am committed to forgiving the person." The scale's reliability was demonstrated by a Cronbach's  $\alpha$  of 0.91.

The Centrality of Religiosity Scale (CRS; Huber and Huber 2012), in its Polish version (Zarzycka, Bartczuk, and Rybarski 2020), was utilized to assess the impact of religion on an individual's personality. This assessment was conducted using 15 items that examine the core of religious beliefs.

Responses were elicited on a scale ranging from 1 (*never*) to 5 (*very often*), exemplified by the prompt: "How often do you feel that God or something divine intervenes in your life?" The reliability of the entire scale was established with a Cronbach's  $\alpha$  of 0.84.

The World Health Organization Well-Being Index (WHO-5; Topp et al. 2015), in its Polish adaptation (Cichoń et al. 2020) was implemented to quantify well-being over the previous 2 weeks. This was achieved through 5 items consolidated into a single factor, exemplified by the statement: "I have felt active and vigorous." The response scale ranged from 0 (*at no time*) to 5 (*all the time*), with a Cronbach's  $\alpha$  of 0.87 reflecting the scale's reliability.

The multidimensional AIMES Connection to Nature Scale (Meis-Harris, Borg, and Jorgensen 2021), in its Polish version (Surzykiewicz et al. 2023), was used to appraise the human-environment interaction with 19 statements across five dimensions: attachment, identity, materialism, experiential, and spiritual. Responses were gathered on a 5-point Likert scale, from 1 (*strongly disagree*) to 5 (*strongly agree*), an example item being: "I think of myself as an 'environmentalist.'" The scale's overall score reliability was denoted by a Cronbach's  $\alpha$  of 0.92.

The Depression, Anxiety, and Stress Scale (DASS-21; Lovibond and Lovibond 1995), in its Polish adaptation (Makara-Studzińska et al. 2022), was engaged to examine negative mental health states with 21 items across three domains: depression, anxiety, and stress. For example, one item stated: "I couldn't seem to experience any positive feeling at all." The reliability of the full scale was represented by a Cronbach's  $\alpha$  of 0.89. Respondents rated their agreement with each item on a 4-point Likert scale, ranging from 0 (*not applicable to me at all*) to 3 (*very much applicable to me or most of the time*).

### 3.3 | Statistical Analyses

Initial analyses, utilizing the Kolmogorov-Smirnov and Levene's tests, affirmed the applicability of parametric methods for our research, an adequate sample size being ascertained under the guidance of G\*Power 3.0.7.8. To assess the RFS's structural validity, we first conducted exploratory factor analysis (EFA) to uncover the scale's underlying factor structure. This was followed by confirmatory factor analysis (CFA), which tested the theory-driven hypothesis that specific underlying factors characterize the observed variables. The exploration of relationships among variables was furthered through Pearson's  $r$  correlation and structural equation modeling (SEM), where the chi-squared ( $\chi^2$ ) statistic, alongside the comparative fit index (CFI) and goodness-of-fit index (GFI)—with values exceeding 0.95 indicating a good fit and those above 0.9 as acceptable—and other fit measures such as the standardized root mean square residual (SRMR, below 0.08) and the root mean square error of approximation (RMSEA, below 0.05 as ideal and under 0.08 as acceptable), assessed model adequacy (Byrne 2016). Lawshe (1975) method, involving expert judgment, evaluated whether test items were essential, useful but not essential, or not necessary for the construct measured, thereby facilitating a quantitative content validity assessment. Effect sizes for correlation

followed the guidelines by Cohen (2013). Analyses were conducted with IBM SPSS Statistics 29 and IBM SPSS Amos 29. The significance level was set at  $p \leq 0.05$ .

## 4 | Results

The analysis of the means and item-total correlations for the RFS statements is detailed in Table 1. All items across both dimensions of the RFS exhibited commendable discriminative ability, with correlations surpassing 0.52 against the total scores of their respective dimensions, excluding the item under scrutiny. Furthermore, a significant intercorrelation of  $r = 0.51$ ,  $p < 0.001$ , was identified between the two dimensions of the RFS, indicating a moderate relationship. The influence of gender on the RFS outcomes was not statistically significant ( $F_{(4, 5)} = 1.14$ ,  $p = 0.429$ ). Similarly, religious affiliation did not show a significant relationship with RFS scores ( $r = 0.04$ ,  $p = 0.277$ ; where 0 = nonbeliever, 1 = Christian). Conversely, age was marginally positively correlated with the RFS ( $r = 0.16$ ,  $p < 0.001$ ), suggesting that older participants might exhibit slightly higher levels of forgiveness as measured by the RFS.

The internal consistency of the RFS was assessed through Cronbach's  $\alpha$  coefficient and McDonald's omega. The overall Cronbach's  $\alpha$  for the RFS was 0.83, indicating good reliability, the presence of positive subscale achieving an  $\alpha = 0.84$  and the

absence of negative subscale showing an  $\alpha = 0.78$ . Similarly, McDonald's omega coefficients reinforced the scale's reliability with an overall  $\omega = 0.84$  for the RFS and subscale values of  $\omega = 0.84$  for the presence of positive and  $\omega = 0.79$  for the absence of negative. These results underscore the consistency and reliability of both subscales and the whole RFS.

### 4.1 | Factorial Validity

To verify the structural integrity of the RFS, participants were randomly divided into two groups. Statistical tests affirmed the equivalence of these groups, a  $t$ -test revealing no significant mean difference between them on RFS scores ( $t_{(738)} = 1.91$ ,  $p = 0.057$ ), ensuring a reliable basis for further analysis. Initially, EFA, estimated using maximum likelihood, was performed on data from the first group, offering an exploratory insight into the scale's factor structure. This was followed by CFA on the second group's data, aimed at confirming the model's fit. This stepwise methodology was designed to test the theoretical validity of the Polish version of the RFS rigorously.

The adequacy of the sample for factor analysis was confirmed by a Kaiser-Meyer-Olkin (KMO) measure of 0.88, suggesting that the sample was suitable for this analysis, and Bartlett's test of sphericity was significant ( $\chi^2_{(105)} = 3302$ ,  $p < 0.001$ ), validating the appropriateness of proceeding with factor analysis. An

**TABLE 1** | Means and item-total correlations of Rye Forgiveness Scale statements ( $N = 740$ ).

	<i>M</i> ( <i>SD</i> )	Item-total correlation		
		RFS	Presence of positive	Absence of negative
Item 1 (R)	3.5 (1.3)	0.51***	0.60***	
Item 2	3.3 (1.3)	0.43***		0.62***
Item 3 (R)	4.6 (0.9)	0.42***	0.50***	
Item 4 (R)	3.0 (1.3)	0.60***	0.58***	
Item 5 (R)	3.5 (1.4)	0.45***	0.53***	
Item 6	1.6 (1.1)	0.40***		0.52***
Item 7	2.5 (1.3)	0.45***		0.52***
Item 8 (R)	3.2 (1.4)	0.46***	0.55***	
Item 9	3.5 (1.2)	0.58***	0.52***	
Item 10 (R)	4.0 (1.3)	0.55***	0.66***	
Item 11	3.5 (1.2)	0.48***	0.56***	
Item 12 (R)	4.2 (1.1)	0.61***	0.59***	
Item 13	2.9 (1.3)	0.42***		0.55***
Item 14 (R)	4.1 (1.2)	0.44***	0.56***	
Item 15	3.1 (1.4)	0.41***		0.53***
		Cronbach's $\alpha$		McDonald's $\omega$
RFS	3.4 (0.7)	0.83		0.84
Presence of Positive	3.7 (0.8)	0.84		0.84
Absence of Negative	2.7 (0.9)	0.78		0.79
Intercorrelation between factors: $r = 0.51$ ***				

Abbreviations: R, revised; RFS, Rye Forgiveness Scale (full).  
\*\*\* $p \leq 0.001$ .

oblimin rotation was applied in the EFA, as detailed in Table 2. Based on the Kaiser criterion, which recommends retaining factors with eigenvalues over one, two factors were identified. This structure aligns with the original instrument, isolating two distinct factors: presence of positive and absence of negative emotions, which accounted for 32% and 21% of the variance, respectively, post-rotation.

The subsequent CFA, utilizing the maximum likelihood estimation method, evaluated a model featuring a second-order factor comprising two first-order factors (see Figure 1). The fit indices indicated a strong model fit in the Polish context:  $\chi^2_{(89)} = 105.34$ ,  $p = 0.114$ ; GFI = 0.967; AGFI = 0.967; RMSEA = 0.063 (0.059, 0.068; 90% CI); CFI = 0.967; SRMR = 0.02. These outcomes support the structural validity of the RFS in the Polish setting, confirming its reliability and applicability for further research.

#### 4.2 | Content Validity

The content validity of the Polish version of the EFS was assessed using Lawshe (1975) method by a panel of five psychologists. Each statement's content validity ratio (CVR) exceeded the recommended threshold of 0.75, indicating strong agreement among experts on the relevance and adequacy of the items for measuring the construct in question.

#### 4.3 | Convergent Validity

In further analyses, we investigated the correlations between the RFS and a variety of variables to assess the convergent validity of the adapted instrument. The RFS demonstrated significant positive associations with emotional and decisional forgiveness, both serving as alternative scales of episodic

forgiveness. In addition, the RFS showed positive, albeit modest, correlations with dispositional forgiveness constructs, including self-forgiveness, forgiving others, and perceived forgiveness from God, as well as with measures of religiosity, mental well-being, and a sense of connection to nature. Notably, the strength of these correlations showed slight variations between the overall RFS scale and its specific subscales, as detailed in Table 3. These significant correlations underscore the convergent validity of the Polish version of the RFS, indicating its robustness in capturing forgiveness congruently with related psychological constructs.

#### 4.4 | State Forgiveness and Health in HIV-Positive Individuals

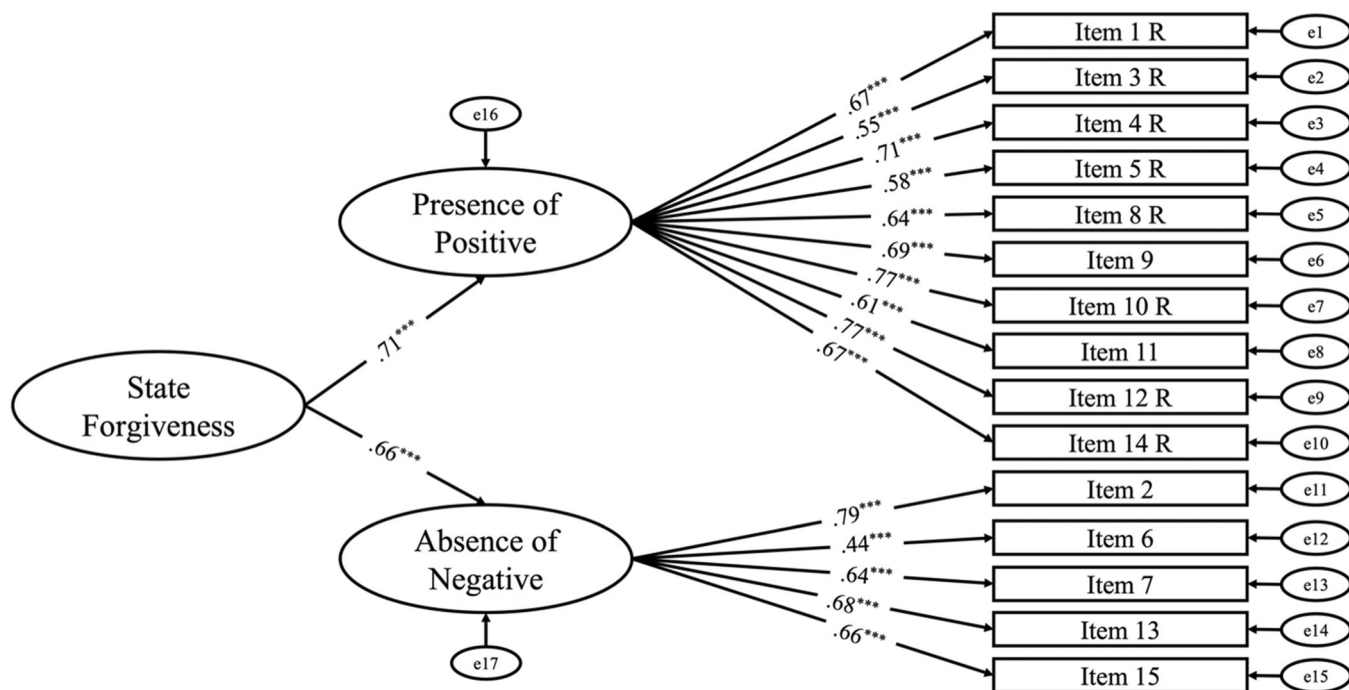
In study 2, we examined the relationship between state forgiveness and negative mental health using a three-wave longitudinal design among HIV-positive individuals. Means and correlations are presented in Table 4. We found that both variables were consistently associated with their subsequent measurements, exhibiting correlations greater than 0.42. At each measurement point, there was a small positive correlation of state forgiveness with negative mental health. Additionally, demographic factors including gender, age, and religious affiliation were not significantly correlated with either state forgiveness or negative mental health ( $p > 0.05$ ).

In the following step, we utilized SEM with the maximum likelihood estimation method to validate the proposed hypothesis. This approach involved a three-wave cross-lagged panel analysis, which was conducted to investigate the reciprocal relationships between state forgiveness and negative mental health at three distinct time points among HIV-positive individuals (see Figure 2). This analysis allowed assessment of the directionality of relationships between variables over time,

**TABLE 2** | Principal component analysis results with oblimin rotation.

	Presence of positive	Absence of negative	Uniqueness
Item 1 R	0.72		0.49
Item 2		0.80	0.37
Item 3 R	0.40		0.79
Item 4 R	0.59		0.51
Item 5 R	0.61		0.63
Item 6		0.56	0.70
Item 7		0.43	0.68
Item 8 R	0.72		0.50
Item 9	0.49		0.54
Item 10 R	0.80		0.38
Item 11	0.46		0.66
Item 12 R	0.59		0.49
Item 13		0.76	0.43
Item 14 R	0.74		0.47
Item 15		0.75	0.46

Abbreviation: R, revised.



**FIGURE 1** | Structure of the Polish version of the Rye Forgiveness Scale. R, revised, \*\*\* $p \leq 0.001$ .

**TABLE 3** | External validity of the Polish version of the Rye Forgiveness Scale.

	<i>M</i> ( <i>SD</i> )	<i>r</i>		
		RFS	Presence of positive	Absence of negative
Emotional Forgiveness	2.8 (0.7)	0.63***	0.56***	0.64***
Decisional Forgiveness	3.5 (1.1)	0.54***	0.49***	0.49***
Self-Forgiveness	3 (1.2)	0.40***	0.54***	0.36***
Forgiveness for Other	3.1 (0.4)	0.48***	0.42***	0.51***
Forgiveness by God	3.2 (0.5)	0.26***	0.24***	0.32***
Religiosity	3.8 (0.6)	0.22***	0.17***	0.34***
Mental Well-being	3.3 (1.8)	0.29***	0.36***	0.27***
Connection to Nature	3.4 (0.8)	0.26***	0.28***	0.16***

\*\*\* $p \leq 0.001$ .

**TABLE 4** | Descriptive statistics and correlations in a three-wave longitudinal study of HIV-positive individuals.

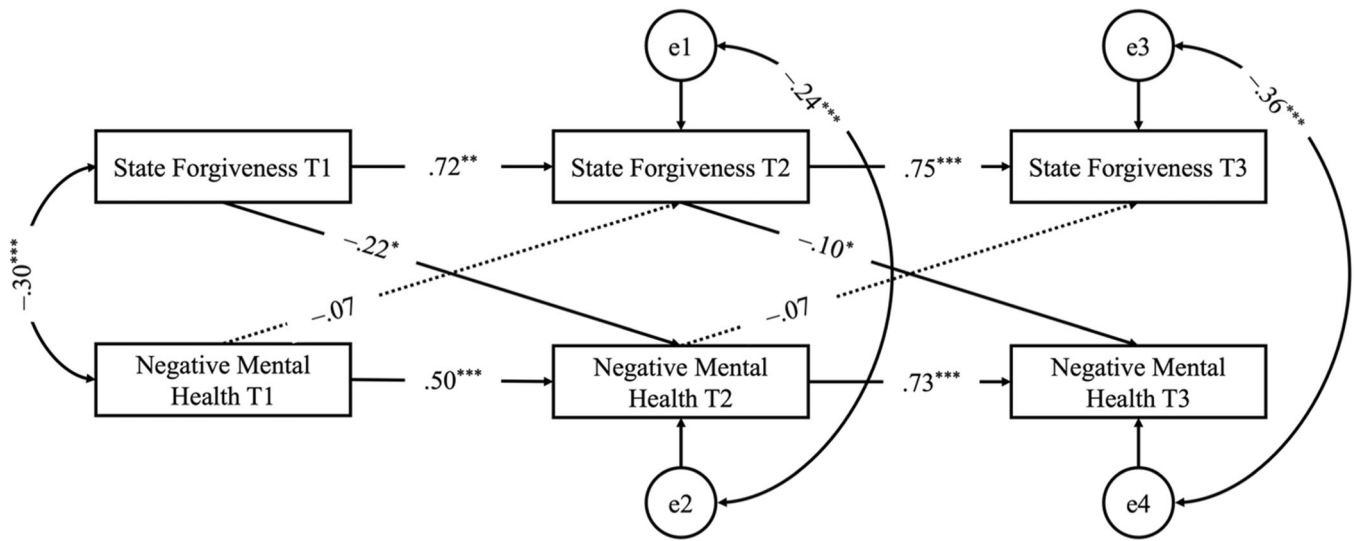
	<i>M</i> ( <i>SD</i> )	1.	2.	3.	4.	5.
1. State Forgiveness T1	2.8 (2.8)	—				
2. Negative Mental Health T1	2 (2.2)	-0.32***	—			
3. State Forgiveness T2	3.0 (3)	0.72***	-0.22***	—		
4. Negative Mental Health T2	1.9 (1.8)	-0.18**	0.42***	-0.28***	—	
5. State Forgiveness T3	3.1 (3.1)	0.82***	-0.29***	0.76***	-0.20**	—
6. Negative Mental Health T3	1.6 (1.5)	-0.20**	0.42***	-0.17**	0.85***	-0.21**

Abbreviation: T, time point.

\*\* $p \leq 0.01$ ; \*\*\* $p \leq 0.001$ .

controlling for prior levels of each variable. The analysis revealed significant cross-lagged effects from time point 1 (T1) to time point 2 (T2) and from T2 to time point 3 (T3; additionally, the model included autoregressive paths at T1 and

covariances of both variables at T1, T2, and T3). In particular, lower levels of forgiveness at T1 were significantly associated with higher levels of negative mental health outcomes at T2 ( $\beta = -0.22$ ,  $p = 0.016$ ), suggesting that initial states of



**FIGURE 2** | Cross-lagged panel model path diagrams: analyzing the dynamics between state forgiveness and negative mental health across three waves in HIV-positive individuals. \* $p \leq 0.05$ , \*\* $p \leq 0.01$ , \*\*\* $p \leq 0.001$ .

forgiveness inversely predict later manifestations of stress, anxiety, and depression. This relationship persisted from T2 to T3 ( $\beta = -0.10$ ,  $p = 0.048$ ), confirming the temporal stability of these effects. Conversely, initial levels of negative mental health did not significantly predict subsequent levels of forgiveness at T2 ( $\beta = -0.07$ ,  $p = 0.167$ ), and mental health status at T2 did not significantly predict forgiveness at T3 ( $\beta = -0.07$ ,  $p = 0.184$ ), indicating a primarily unidirectional influence from forgiveness to mental health. The model fit was satisfactory ( $\chi^2_{(5)} = 9.71$ ,  $p = 0.114$ ; GFI = 0.951; AGFI = 0.95; RMSEA = 0.059 (0.044, 0.072; 90% CI); CFI = 0.951; SRMR = 0.03), corroborating the hypothesis with empirical data. Therefore, these findings underscore a unidirectional relationship in which state forgiveness significantly mitigates negative mental health outcomes over time among HIV-positive individuals, highlighting the potential therapeutic importance of fostering forgiveness within this population.

In a constrained model, where we fixed to equality paths from state forgiveness to negative mental health, the decrease in model fit was not statistically significant compared to the baseline model, with  $\Delta\chi^2_{(2)} = 4.03$ ,  $p = 0.133$ , indicating  $\chi^2_{(7)} = 13.74$ ,  $p = 0.056$ ; GFI = 0.946; AGFI = 0.945; RMSEA = 0.062 (90% CI [0.048, 0.104]); CFI = 0.946; SRMR = 0.066. In the model that imposed constraints on reverse causal effects from health to state forgiveness, the deterioration in fit was statistically significant relative to the baseline model, as indicated by  $\Delta\chi^2_{(2)} = 7.21$ ,  $p = 0.027$ , suggesting  $\chi^2_{(7)} = 16.92$ ,  $p = 0.018$ ; GFI = 0.921; AGFI = 0.919; RMSEA = 0.096 (90% CI [0.061, 0.231]); CFI = 0.921; SRMR = 0.14.

## 5 | Discussion

The adaptation of the RFS for the Polish context and its subsequent application to investigate the impact of state forgiveness on the health outcomes of HIV-positive individuals represents a significant advancement in the study of forgiveness within diverse cultural settings. The findings from this research

contribute to a growing body of literature emphasizing the significant role of forgiveness in promoting mental and physical health, extending our understanding of forgiveness's therapeutic potential across clinical and non-clinical populations.

The adaptation of the RFS to the Polish context demonstrated notable psychometric strengths, closely aligning with the foundational study by Rye et al. (2001). Our evaluations confirmed the scale's substantial internal consistency and factorial validity within the Polish milieu. Notably, both EFA and CFA successfully preserved the original scale structure, encompassing all items and their significant data fit, a less common achievement in the local adaptation of forgiveness measures (Charzyńska and Heszen 2013; Mróz, Kaleta, and Guzewicz 2016). The Polish RFS exhibited high internal consistency, with Cronbach's  $\alpha$  values of 0.78 for the absence of negative, 0.84 for the presence of positive, and 0.83 for the overall scale, paralleling prior validations (Rezaei, Arfa, and Rezaei 2020; Rye et al. 2001; Ulus and Aksoy 2017). Additionally, the scale's convergent validity was evidenced by significant correlations with established measures of emotional and decisional forgiveness (to assess state forgiveness), dispositional forgiveness, religiosity, mental well-being, and connection to nature. These associations affirm the Polish RFS's utility in measuring forgiveness toward specific offenders, effectively capturing the diminution of negative emotions and the emergence of positive sentiments toward the transgressor. However, the longitudinal stability of the scale warrants additional scrutiny, given the potential variability in state forgiveness intensity over time and in reaction to therapeutic interventions. The reliance on a general population sample for the study may lead to an underestimation of forgiveness intensity, underscoring the need for subsequent investigations with clinical populations. However, the deployment of this scale in our subsequent longitudinal study of HIV-positive individuals, which showed consistent correlations across measurement points (above 0.72), addresses these concerns well. In addition, the dynamic nature of human existence, including the navigation of social challenges that may lead to distress stemming from unforgiveness,



supports the application of the RFS across general cohort samples (Skalski-Bednarz et al. 2024a). With the scale's successful replication of the original structure, future studies are encouraged to investigate cross-cultural invariance, enhancing our comprehension of forgiveness as a construct of universal relevance.

To our knowledge, this study is the first to conduct a longitudinal examination of the relationships between forgiveness and mental health outcomes among HIV-positive individuals, also marking a pioneering exploration of forgiveness within the unique context of the Polish HIV-positive population. This research addresses a notable gap in existing literature, which predominantly comprises cross-sectional studies (Hua 2012; Skalski-Bednarz et al. 2024b; Vosvick and Dejanipont 2023). These studies are often limited in their ability to establish causality due to their design and frequently neglect the complex cultural dynamics of populations outside North America, such as those in Poland.

Our findings affirm the projected sequential impact of state forgiveness on mitigating negative mental health outcomes, a premise initially posited by cross-sectional studies (Nkomo and Kufankomwe 2020; Skalski-Bednarz et al. 2024a; Temoshok and Wald 2005; Toussaint et al. 2023; Wald and Temoshok 2004). Consistent with stress-and-coping theories of forgiveness (Strelan 2020; Worthington and Scherer 2004), our research elucidates forgiveness as a critical coping strategy significantly enhancing health perceptions and life satisfaction. Despite our thorough methodological design slightly tempering the magnitude of forgiveness's impact on health improvements—a typical phenomenon in longitudinal assessments of cross-sectional insights (e.g., Nettle et al. 2021; Vosvick and Dejanipont 2023)—the relevance of our discoveries to the psychology of forgiveness and its health impact is important to note. Forgiveness emerges as a valuable element in bolstering the quality of life for HIV-positive individuals, reducing stress, depression, and anxiety, and confronting the widespread challenges of self-blame and societal stigma linked to HIV. Additionally, our study highlights the detrimental effects of unforgiveness, such as an escalated desire for vengeance and social estrangement, on the welfare of HIV-positive individuals. The importance of social support, as underscored by existing research (e.g., Mauger et al. 1992; Wainberg and Dixon 2017), becomes particularly evident in this context, indicating that forgiving could offer a distinctive avenue for enhancing the lives of HIV-positive individuals. This pathway likely stems from the unique social and psychological adversities associated with HIV, wherein interpersonal connections and social support are indispensable for successful coping and adjustment (Dobrakowski and Skalski 2019; Skalski, Dobrakowski, and Wasilewska 2022; Wainberg and Dixon 2017). Thus, it seems that the act of forgiving others may serve as an effective shield against the social exclusion and isolation often encountered by HIV-positive individuals, substantially elevating their mental health.

Additionally, our findings are in harmony with studies on non-HIV-positive populations. For example, a longitudinal investigation by Long et al. (2020) of female nurses showed that forgiveness positively influenced subsequent health and well-being. Similarly, the two-wave study by Orth et al. (2008)

revealed a positive correlation between forgiveness and psychological adjustment after interpersonal transgressions. Furthermore, the exhaustive review by Webb and Toussaint (2020) identified 714 peer-reviewed scientific articles on the link between forgiveness and comprehensive psychological well-being—a term encompassing mental health and well-being—spanning from 1947 to 2018.

The modest ( $\beta = [-0.22, -0.10]$ ) but statistically significant relationship between forgiveness and mental health in the HIV-positive population underscores the practical implications of these results. Even slight improvements in mental health, attributed to forgiveness, can significantly enhance the quality of life for individuals living with HIV, marking crucial strides in boosting their overall well-being and resilience. These enhancements are pivotal not only for strengthening social bonds and reducing stress but also for improving adherence to medical treatments, essential factors in managing HIV effectively (Temoshok and Wald 2005).

The capacity of forgiveness to alleviate negative emotions and counteract social alienation acts as a preventive measure against the escalation of mental health challenges such as depression and anxiety which are prevalent among those with HIV (Toussaint et al. 2023). This understanding of the impact of forgiveness interventions offers a valuable direction for health professionals, suggesting the integration of forgiveness into comprehensive care strategies to foster a supportive community atmosphere. Among potential interventions, REACH Forgiveness stands out as being particularly suitable. Developed by Worthington (2020), this therapy employs a structured, evidence-based process aimed at helping individuals reconcile and forgive personal grievances. Through the steps of recalling the hurt (R), empathizing with the offender (E), offering an altruistic gift of forgiveness (A), committing publicly to forgive (C), and holding onto forgiveness (H), REACH Forgiveness education provides a practical framework for overcoming resentment and fostering emotional healing. This makes it a powerful component of holistic care plans for HIV-positive individuals. The imperative for a comprehensive approach in HIV care, encompassing emotional, social, and physical dimensions, is evident, heralding substantial benefits for the well-being of affected individuals. Within this framework, REACH Forgiveness education emerges as a potent intervention, potentially facilitating significant improvements in patient quality of life. This underscores the critical role of psychological support within the HIV care continuum, aiming to enhance overall health outcomes and well-being.

Alternatively, the Stanford Forgive for Good Model presents a comprehensive nine-step therapeutic approach focused on fostering forgiveness and emotional recovery to boost health and well-being (Toussaint, Worthington, and Cowden 2024). This model encompasses recognizing one's feelings regarding an offense, deciding to forgive for self-benefit, understanding the essence of forgiveness, minimizing blame, managing stress reactions, transforming unenforceable expectations into hopeful aspirations, shifting attention towards personal objectives, seeking gratitude-inducing experiences, and reinterpreting offenses from a perspective of resilience and empowerment. Demonstrated to be effective in patients with hypertension and

widely implemented (Tibbits et al. 2006), this model offers another robust strategy for integrating forgiveness into health care practices, particularly beneficial for those managing chronic conditions.

A notable strength of this study is the successful adaptation and validation of the RFS for the Polish context, which exhibited robust psychometric properties and strong cultural relevance. The longitudinal design further enriched the research by providing valuable insights into the evolving relationship between forgiveness and mental health among HIV-positive individuals, deepening our understanding of forgiveness as a protective factor over time. By focusing on a vulnerable population, the study highlights the potential for forgiveness-based interventions to promote psychological well-being in clinical settings. However, despite these strengths, certain limitations must be acknowledged beyond the general challenges of scale adaptation. The longitudinal design, while illuminating the dynamics of forgiveness over time, cannot establish definitive causality due to potential unmeasured confounders. Dependence on self-reported data to assess forgiveness and mental health may introduce response bias, affecting the accuracy of the findings. The specificity of the cohort—HIV-positive individuals on ARV therapy in relatively good health—limits the generalizability of the results across various clinical, non-clinical, or cultural groups. This cohort's proactive engagement in treatment might indicate an acceptance of their condition, potentially skewing mental health outcomes positively.

The homogeneity of participants in terms of age and health conditions, and the lack of religious diversity reflecting Poland's predominantly Christian fabric, constrain the depth of analysis possible of the impact of these factors on forgiveness and well-being. The anticipated positive correlation between age and forgiveness, observed in wider populations and our validation study, was not evident in this HIV-positive group. Although no significant differences were found between believers and non-believers in terms of forgiveness and health outcomes, the pervasive cultural influence of Catholicism in Poland might mask the nuanced effects of religious motivation on these aspects (a limitation applicable to both studies).

Despite tracking mental health changes over a notable 1.5-year span, the enduring effects of forgiveness on mental health require further exploration, underscoring the need for ongoing research to understand forgiveness's long-term impacts. Future studies should delve into the causal relationships between forgiveness and mental health using mixed methods and longitudinal approaches across diverse cultural backgrounds, incorporating objective health metrics alongside self-reported data to boost both reliability and generalizability. Moreover, assessing the efficacy and sustained effects of various forgiveness interventions within holistic care models will be vital for embedding psychological support into routine care for individuals with chronic conditions like HIV.

This research stands out for its use of longitudinal data from a cohort of HIV-positive individuals, filling a critical void in the forgiveness literature traditionally dominated by cross-sectional studies. This approach significantly enriches our understanding within the realms of health psychology and HIV care. The study

illuminates the role of forgiveness as an effective coping mechanism, emphasizing its value in the holistic care of those living with HIV. By introducing a culturally validated tool to measure forgiveness and demonstrating its positive impacts through longitudinal analysis, this work lays the groundwork for further investigation into forgiveness-focused interventions for people living with HIV in Poland and elsewhere. Consequently, this research has important implications for psychological research, clinical practice, and the creation of supportive therapies designed to enhance resilience and improve the overall well-being of HIV-positive individuals.

### Author Contributions

**Sebastian Binyamin Skalski-Bednarz:** conceptualization, formal analysis, funding acquisition, investigation, methodology, project administration, resources, software, validation, visualization, writing—original draft, writing—review and editing. **Loren L. Toussaint:** Formal analysis, Investigation, Supervision, Writing—review and editing. **Paweł Dobrakowski:** Investigation, Writing—review and editing.

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### Ethics Statement

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study was approved by the Ethics Committee of the University of Economics and Human Sciences in Warsaw.

### Consent

Informed consent was obtained from all individual participants included in the study.

### Conflicts of Interest

The authors declare no conflicts of interest.

### Data Availability Statement

The data sets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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