

Article

Indirect Relationship between Alcoholics Anonymous Spirituality and Their Hopelessness: The Role of Meaning in Life, Hope, and Abstinence Duration

Marcin Wnuk 

Department of Psychology, Adam Mickiewicz University in Poznań, 60-568 Poznań, Poland; marwnu@amu.edu.pl

Abstract: Spiritual growth is a significant factor in Alcoholics Anonymous treatment process. In the literature, there is an observable lack of research regarding spiritual mechanisms of recovery in alcohol addicted individuals who are participants of self-help groups. The study purpose was to examine the potential mechanisms indirectly influencing participants of Alcoholics Anonymous (AA) and to determine the effects of spiritual experiences on their feelings of hopelessness through finding meaning in life, improving hope, and longer abstinence duration. The study was conducted using a cross-sectional design. Participants were AA meeting attenders from Poland. According to the obtained results, the relationship between spiritual experiences and feelings of hopelessness was indirect through meaning in life, hope, and abstinence duration. Additionally, the moderated mediation effect was positively verified. Meaning in life moderated the relationship between hope and feelings of hopelessness. In a group of AA participants with less-than-average and average levels of meaning in life, hope protected against feelings of hopelessness. Among AA participants with higher-than-average meaning in life, hope was not related to their depression symptoms. The spiritual mechanisms, which led to reduced feelings of hopelessness among AA participants, and the role of meaning in life, hope, and duration of abstinence were confirmed.

Keywords: Alcoholics Anonymous; spiritual experiences; meaning in life; hope; abstinence duration; feelings of hopelessness; mediator variable; moderator variable



Citation: Wnuk, Marcin. 2021. Indirect Relationship between Alcoholics Anonymous Spirituality and Their Hopelessness: The Role of Meaning in Life, Hope, and Abstinence Duration. *Religions* 12: 934. <https://doi.org/10.3390/rel12110934>

Academic Editors: Jesús Saiz Galdós, Tamara L. Goldsby and Carolina Marín Martín

Received: 19 September 2021
Accepted: 22 October 2021
Published: 28 October 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Involvement in self-help groups such as Alcoholics Anonymous (AA) is a common form of support in the recovery process for alcohol dependence individuals (Tonigan et al. 1996; Kaskutas et al. 2005; Allen 2000; Wnuk et al. 2009). A significant element of recovery in this population is spiritual growth (Morjaria and Orford 2002; Zylstra 2006; Geppert et al. 2007), which takes place thanks to the application of the Twelve Steps program. This program constitutes a set of guidelines necessary to maintain abstinence and to achieve a fulfilling life (Twelve Steps and Twelve Traditions 1987).

For example, among individuals who were Oxford House residents, 43% came to believe in spirituality for the first time in their lives as a result of AA meetings, 11% developed the spiritual sphere of their life, 20% started to believe in a “Higher Power,” and 7% had a spiritual experiences for the first time (Nealon-Woods et al. 1995). In alcoholics undergoing therapy based on the Twelve Steps program, an increase in the level of spirituality was found in the 12th week of therapy (Brown et al. 2007). Recent research has confirmed the beneficial effect of spiritual growth in AA participants. According to previous research in a sample of AA participants, spirituality was positively related to satisfaction with life (Corrington 1989), positive health behaviors (Magura et al. 2003), a more optimistic life attitude, higher social support, higher resistance to stress, and lower anxiety level (Pardini et al. 2000). Little is known about the mechanism underlying the relationship between spiritual growth and mental health (Lyons et al. 2010). The aim of the study was to verify

the potential influence of spiritual experiences on the mental health of AA participants through indirect mechanisms involving meaning in life, hope, and abstinence.

Mental health was measured by feelings of hopelessness as one aspect of the cognitive manifestation of depressive thoughts regarding negative and pessimistic evaluations of the past (Beck et al. 1974).

Spiritual growth was measured by spiritual experiences defined as a feeling God's presence, finding strength in religion or spirituality, feeling deep inner peace or harmony, feeling God's love through others, feeling spiritually touched by the beauty of creation, and a desire to be closer to God or in union with the divine (Underwood 2011). This tool is Spiritual experiences are a wider concept than religiousness (Wnuk 2021a), being independent of religious denominations and appropriate for individuals without theistic inclinations (Underwood 2011). In self-help groups participants, spiritual experiences can be a result of secular activities such as involvement in AA (Krentzman et al. 2013; Krentzman et al. 2017), as well as religious engagement (Wnuk 2021b). For example in a sample of Polish AA participants prayer and Mass attendance were positively correlated with spiritual experiences (Wnuk 2021a). Despite of the fact that Poland is very religious country (Pew Research Center 2018) religious engagement is not related to involvement in AA. This religious and secular approach to spiritual growth reflecting two different ways to achieve this goal called religious spirituality and secular spirituality. Religiously affiliated AA participants can parallelly use both of them, but for religious skeptics, atheists, and agnostics self-help groups offer the possibility of spiritual growth without religious involvement (Wnuk 2021b).

2. Literature Review

2.1. Indirect Relationship between Spirituality and Wellbeing through Abstinence Duration

Much research has confirmed that among AA participants, spirituality is associated with reduced drinking and abstinence. Carter (1998) and Polcin and Zemore (2004) found that the spirituality of AA participants was positively correlated with their abstinence duration. Additionally, longitudinal studies have indicated the beneficial effects of spiritual practices on alcoholics' abstinence (Tonigan et al. 2017; Brown et al. 2007) and drinking intensity (Kelly et al. 2011; Krentzman et al. 2013; Robinson et al. 2011). This means that in this population, spirituality is an antecedent of abstinence.

However, the results of many studies have confirmed that abstinence duration is positively related to various indicators of alcoholics' wellbeing (De Soto et al. 1989; Kraemer et al. 2002; Moos et al. 2001; Cohn et al. 2003). For example, in a sample of US adults recovering from alcohol and other drug addictions, abstinence was positively correlated with quality of life, happiness, and decreased psychological distress (Kelly et al. 2018). In one study, Wnuk (2021a) explored indirect relationship between spiritual experiences and life satisfaction, confirming that more frequent spiritual experiences in AA participants facilitated longer abstinence, which in turn was positively related to their life satisfaction.

Hypothesis 1 (H1). *In a sample of Polish AA participants, spiritual experiences are indirectly related to hopelessness through abstinence duration.*

2.2. Indirect Relationship between Spirituality and Wellbeing through Hope

Hope has been tested as an important factor being a part of spiritual mechanism that leads to better wellbeing and mental health, but this research was limited mostly to a sample of students and adolescents (Wnuk 2021a; Wnuk and Marcinkowski 2014; Nell and Rothmann 2018). For example, according to recent research, in both Polish and Chilean students, spiritual experiences predicted the finding of meaning and purpose in life, which in turn was correlated with higher satisfaction in life and the intensity of positive affect (Wnuk 2021a; Wnuk and Marcinkowski 2014).

An important factor of hope, especially in difficult or crisis situations like cancer diagnosis, is spirituality (Zarzycka et al. 2019). In addiction literature, there is a noticeable lack of research on this topic. Only two studies on the relationship between spirituality and hope in individuals addicted to alcohol or co-addicted individuals were found (Wnuk 2015; Wnuk 2021a). In a sample of co-addicted participants belonging to self-help groups from Poland, both spiritual experiences and positive religious coping were positively related to hope (Wnuk 2015). Additionally, in a sample of Polish AA participants, spiritual experiences were correlated with hope (Wnuk 2021a).

Little more is known about the beneficial role of hope in treating addictions. Hope is treated as an important factor in therapy for people addicted to alcohol (Kanas and Barr 1981). According to recent research conducted among alcohol addicted individuals, hope was positively related to health-promoting behavior (Magura et al. 2003), the evaluation of life up to now, subjective mental health, and life satisfaction (Wnuk 2017; Wnuk 2021a) and negatively related to the level of stress (Wnuk 2017), anxiety, and depressive symptoms (May et al. 2015).

It was expected that within spiritual mechanisms, spiritual experiences influence hopelessness indirectly through hope. In this study hope was operationalized as a multidimensional dynamic life force characterized by a confident yet uncertain expectation of achieving goals, which to the hoping person is realistically possible and personally significant (Dufault and Martocchio 1985). Feelings of hopelessness and hope are different constructs. The first one focuses on the past, reflecting a pessimistic approach to life. The second one is directed toward the future and has optimistic views about achieving goals. Previous research has indicated a moderate relationship between both concepts (Hirsch et al. 2012; Benzein and Berg 2003).

Hypothesis 2 (H2). *In a sample of Polish AA participants spiritual experiences are indirectly related to hopelessness through hope.*

2.3. Indirect Relationship between Spirituality and Wellbeing through Meaning in Life

Researchers have tried to confirm the spiritual mechanism and the positive indirect influence of religious-spiritual facets of life as a meaning-oriented system (Silberman 2005), which through finding meaning in life leads to better health and wellbeing (Park 2007). Most studies regardless of research samples and used measures have indicated that religious-spiritual commitment indirectly influences wellbeing via finding meaning in life (Wnuk and Marcinkowski 2014; Stewart et al. 2017; Krok 2015).

For example, in Wnuk and Marcinkowski (2014) study, students' spiritual experiences predicted finding meaning in life, which in turn was positively correlated with life satisfaction and positive affect.

Searching for meaning in life is positively related to addictive behaviors, but finding meaning and purpose in life is important factor for recovery of addicted individuals. For example, difficulties with finding meaning and purpose in life are related to alcohol and drug abuse (Crumbaugh and Maholick 1964; Harlow et al. 1986; Newcomb and Harlow 1986; Nicholson et al. 1994), sedative use (Koushede and Holstein 2009), smartphone addiction (Çevik et al. 2020), and gambling (Zhang et al. 2020). However, finding meaning and purpose in life is an important factor in the process of recovery from alcoholism (Gutierrez 2019; Lyons et al. 2011; Krentzman et al. 2017), as the core of spiritual transformation is based on the social learning that has taken place among AA participants (Lyons et al. 2010). The significant role of meaning in life in recovery in alcoholics in AA was confirmed in a longitudinal study by Robinson et al. (2011) and Krentzman et al. (2017). Meaning in life increased between the baseline and sixth month of therapy; participants had fewer drinks per day (Robinson et al. 2011). Additionally, in research conducted by Krentzman et al. (2017), meaning in life successfully increased over time and could predict better alcohol use outcomes.

In the area of addiction, there is a lack of research exploring the role of spirituality and meaning in the life in alcoholics (Lyons et al. 2011; Gutierrez 2019). Some have indicated a positive association between these variables, confirming the role of meaning in life as a mediator in the relationship between spirituality and wellbeing. For example, in a sample from the Australian Salvation Army Rehabilitation Service Centres addicted to various substances, especially alcohol, spiritual experiences were positively related to meaning and purpose in life (Lyons et al. 2011).

Additionally, only two studies have indicated the beneficial effects of finding meaning in the life in alcoholics' and co-addicted individuals' wellbeing and mental health (Wnuk et al. 2009; Stewart et al. 2017). Among 155 African-American participants in AA, spirituality positively influenced psychological wellbeing and physical health both directly and indirectly through finding meaning and purpose in life (Stewart et al. 2017). In a sample of Polish co-addicted individuals participating in AA and self-help groups, spiritual experiences were positively related to meaning in life, which in turn was associated with higher satisfaction with life, happiness, and lower distress (Wnuk et al. 2009).

Hypothesis 3 (H3). *In a sample of Polish AA participants, spiritual experiences are indirectly related to hopelessness through meaning in life.*

3. Materials and Methods

3.1. Participants

The research participants were 70 individuals addicted to alcohol attending AA meetings in Poznań, Poland. Every participant expressed their agreement to take part in the study. The surveys were distributed by the psychologist during AA meetings and collected during the next meeting after being completed at home. All participants were Roman-Catholics denomination.

3.2. Measures

3.2.1. Spiritual Experiences

Spiritual experiences Daily Spiritual Experiences Scale (DSES) is a 16-item self-report measure for examining ordinary experiences of connection with the transcendent reality in daily life. The reliability ranges depending on the research and differs from $\alpha = 0.86$ to $\alpha = 0.95$ (Underwood 2011). A short version of this tool consisting of six items was used.

3.2.2. Meaning in Life

Meaning in Life The Purpose in Life Test (PIL) was designed to measure the ideas of Victor Frankl to determine an individual's experience of meaning and purpose in life. It is a 20-item tool, which the individuals respond to by marking the fields placed on the continuum between 1 and 7, with 7 indicating maximum intensity related to the meaning of life and 1 indicating a minimum intensity. The reliability of this test measured as the Pearson's r coefficient was 0.82; with the Spearman–Brown correction, it was 0.90 (Crumbaugh and Maholick 1964). In a Polish version of the scale, when a test–retest method was used during a six-month interval, the reliability ranged from 0.64 to 0.70 depending on the population studied (Siek 1993).

3.2.3. Hope

Hope The Herth Hope Index (HHI) consists of 12 items judged on a four-point Likert-type scale, from one (completely disagree) to four (completely agree) (Herth 1991). This tool has satisfactory construct validity and reliability (Nayeri et al. 2020).

3.2.4. Abstinence Duration

Abstinence duration A one-item measure was used to verify abstinence duration. Participants declared how many months they had stayed abstinent from alcohol.

3.2.5. Hopelessness

Feeling of Hopelessness BHS measures one of the three elements of the depressive cognitive triad: negative and pessimistic evaluations of the past (Beck et al. 1974). It consists of 20 items to which subjects respond positively or negatively. The higher the score, the higher the respondent's feelings of hopelessness. The reliability of the whole scale, depending on the population in which measurement is performed and on the method applied, varies from 0.65 to 0.93 (Holden and Fekken 1988; Durham 1982).

3.3. Conceptual Model and Analytical Strategy

Taking into consideration the spiritual mechanism leading to better mental health of AA participants, the aim of this study was to further understand how spiritual experiences indirectly affect alcohol addicted individuals through finding meaning in life, hope, and abstinence. Furthermore, this work attempted to determine how these factors are related to lowered levels of cognitive depressive symptoms.

Meaning in life and hope are related constructs (Haugan 2014). Purpose in life and hope are components of existential well-being that include realizing values, having goals, controlling one's destiny, and finding self-acceptance (Baumeister et al. 2002). It was expected that these variables are correlated.

Structural equation modeling (SEM) was used to examine the potential mediating role of meaning in life, hope, and abstinence duration in the relationship between AA participants' spiritual experiences and their feelings of hopelessness. The following chosen model fit indicators were used: fit index (NFI), goodness-of-fit index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). Due to the small sample size, a nonparametric bootstrapping procedure (with 5000 bootstrap resamples) was used to increase the likelihood of the veracity of the obtained results. Both bias-corrected (BC) percentile methods for 95% confidence intervals (Cis) were derived; when the interval did not include a value = 0, the test statistic was significantly different from zero (Preacher and Hayes 2008). Due to the potential multicollinearity problem Variance Inflation Factors (VIF) were computed.

4. Results

Sociodemographic variables are shown in Table 1, descriptive statistics in Table 2, and results of Pearson's correlation coefficients in Table 3. Model reflected research hypotheses was presented at Scheme 1.

Table 1. Demographics variables ($n = 70$).

	Classification	Percentage or Mean
Gender	Men	73.9%
	Women	26.1%
Age		46.1 years
Education	Elementary education	5.8
	Occupational education	29%
	High school education	46.4%
	University education	18.8%
Duration of AA participation		102 months

(Source: author's research).

Table 2. Descriptive statistics ($n = 70$).

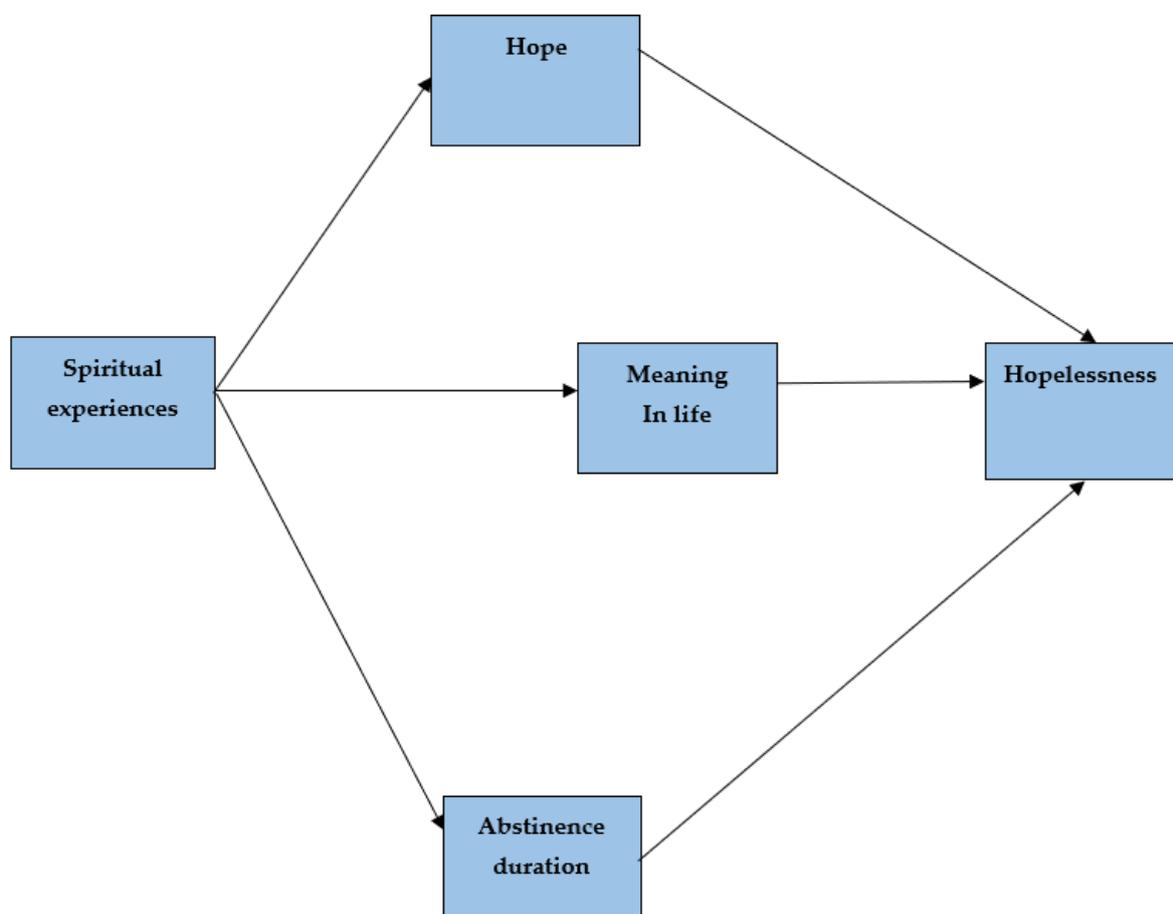
	DSES	BHS	PIL	HHI	Abstinence
Mean	21.37	3.12	108.14	38.54	75.79
SD	7.39	2.84	14.84	4.57	63.69
Skewness	0.76	1.69	-0.88	-0.01	0.86
Kurtosis	0.03	2.99	0.96	-0.73	-0.10
Minimum	5	0	66	29	0
Maximum	41	14	134	47	245
Reliability	0.78	0.90	0.79	0.80	-
VIF	1.72	-	1.67	1.7	1.18

(Source: author’s research). DSES—Daily Spiritual Experiences Scale; BHS—Beck Hopelessness Scale; PIL—Purpose in Life Test; HHI—Herth Hope Index; Variance Inflation Factor.

Table 3. Correlation matrix ($n = 70$).

	1	2	3	4
1. Hopelessness				
2. Spiritual experiences	-0.28 **			
3. Meaning in life	-0.58 **	0.55 **		
4. Hope	-0.50 **	0.56 **	0.57 **	
5. Abstinence duration	0.07	0.37 **	0.30 *	0.30 *

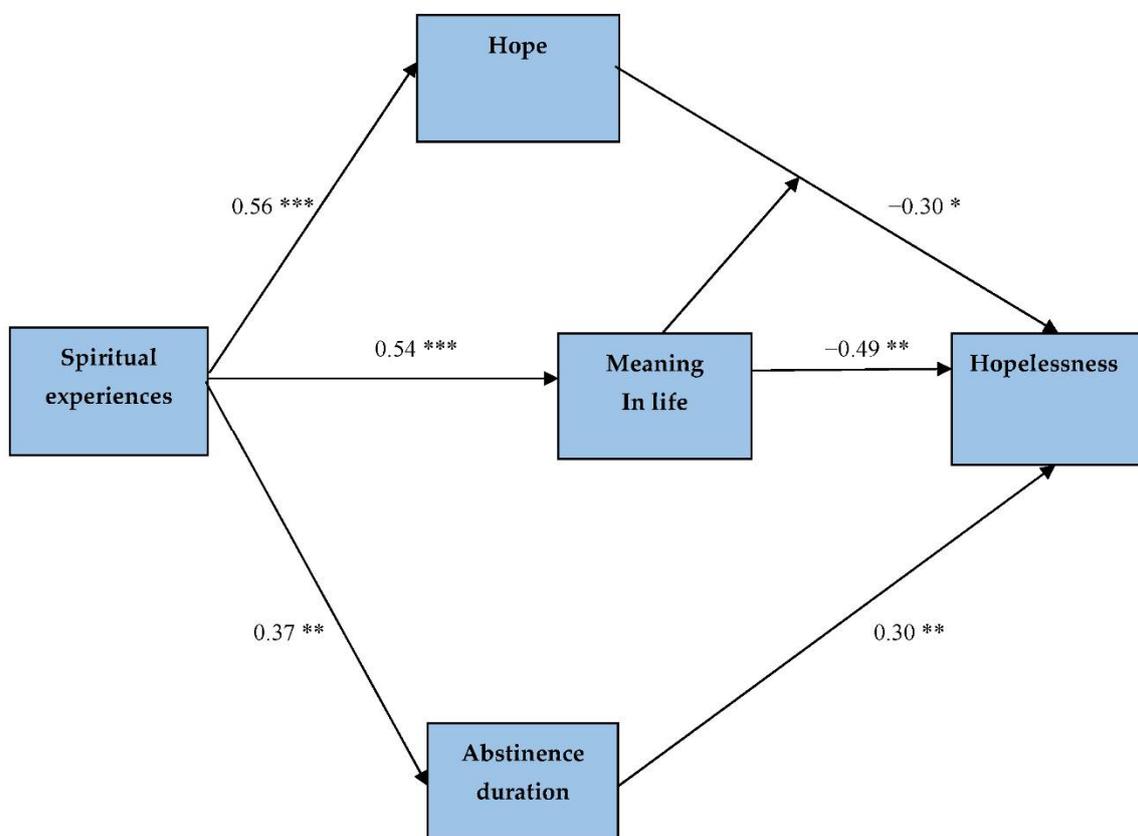
(Source: author’s research). * $p \leq 0.05$. ** $p \leq 0.01$.



Scheme 1. Model reflected research hypotheses (Source: author’s research).

There were statistically significant moderate positive links between spiritual experiences and meaning in life, hope, as well as abstinence duration. In turn, these variables, besides abstinence duration, were moderate and negatively related with feelings of hopelessness. Spiritual experiences were negatively associated with feelings of hopelessness. Additionally, meaning in life, hope, and abstinence duration were intercorrelated. According to the results of Pearson's r in the model, which was examined the link between mediators such as meaning in life and hope were marked as not causally correlated (Jérolon et al. 2020).

There were no values of VIF exceeding 5 (see Table 2), which means that there is no multicollinearity problem (Menard 2001). According to SEM analysis, only one of the three pairs of mediators was statistically significantly correlated, and it regarded the association between meaning in life and hope ($r = 0.375$; $p \leq 0.01$). Meaning in life ($r = 0.127$; $p = 0.308$) and hope ($r = 0.123$; $p = 0.323$) were not related to abstinence duration. These statistically irrelevant paths between meaning in life and abstinence duration and hope and abstinence duration were rejected from the model. The final model is presented in Scheme 2.



Scheme 2. Final model (Source: author's research). Note. The standardized regression coefficients are presented. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. For the sake of legibility, the correlations between the residuals of mediators (correlation between meaning in life and hope) were omitted in Scheme 2.

The values of RMSEA = 0.000 (90% CI [0.000, 0.178]), NFI = 0.982, GFI = 0.988, CFI = 1, $\chi^2 = 1.99$, $df = 3$, $p = 0.574$ [CMIN/ $df = 0.664$] confirmed that the model was a good fit to the data. The level of NFI as well as CFI exceeded 0.9 and 0.93, respectively (Steiger 1990). The value of RMSEA was on the referential level for perfect model fit (i.e., below the level of 0.05) (Kline 1998). Additionally, the values of CMIN/ df statistics, based on the chi-square statistic, were lower than the required standard of -2 or 3 (Byrne 1994). Additionally, the Bollen–Stine bootstrapping method ($p = 0.589$) performed on 5000 proved the good fit of the tested model.

In the model, spiritual experiences standardized direct effect on meaning in life was statistically significant (CI 95% [0.364; 0.690], $\beta = 0.548$, $p < 0.01$), the same as standardized direct effect of spiritual experiences on hope (CI 95% [LL = 0.325 to UL = 0.728], $\beta = 0.561$, $p < 0.01$), as well as standardized direct effect of spiritual experiences on abstinence duration (CI 95% [LL = 0.148 to UL = 0.549], $\beta = 0.372$, $p < 0.01$). In turn meaning in life was directly related to decreased in hopelessness (CI 95% [LL = -0.749 to UL = -0.182], $\beta = -0.491$, $p < 0.01$), the same as hope (CI 95% [LL = -0.506 to UL = -0.065], $\beta = -0.300$, $p < 0.05$). Abstinence duration was directly related to increased in hopelessness (CI 95% [LL = 0.133 to UL = 0.468], $\beta = 0.303$, $p < 0.01$).

Spiritual experiences were statistically significant indirectly related to decreased in hopelessness through meaning in life, hope, and abstinence duration (CI 95% [LL = -0.114 to UL = -0.022], total indirect effect = -0.063 , $p = 0.001$). Additionally specific indirect effects were computed. The indirect effect of spiritual experiences on hopelessness through meaning in life was statistically significant (CI 95% [LL = -0.104 to UL = -0.016], indirect effect = -0.054 , $p = 0.002$), as well as through hope (CI 95% [LL = -0.065 to UL = -0.010], indirect effect = -0.031 , $p = 0.008$), and through abstinence duration (CI 95% [LL = 0.007 to UL = 0.044], indirect effect = 0.022, $p = 0.002$).

To examine the potential influence of hope and meaning in life on hopelessness in an interacting way, moderation analysis with a Process macro in SPSS with probe interactions on -1 standard deviation (SD), mean and $+1$ SD, and Johnson–Neyman output were used (Hayes 2018). Probe interactions on -1 SD, mean, and $+1$ SD represent “low,” “medium,” and “high” values on that variable (see Aiken and West 1991). Using the Johnson–Neyman output, the relationship between the independent variable and the dependent variable could be verified for regions of significance across levels on the moderator variable. Recent research has indicated that among correlated mediators, one of them can play a moderating role. For example, in Wnuk’s (2021b) study, positive religious coping in Polish students was the mediator in the relationship between their faith and life satisfaction and the moderator between God’s perceived support and life satisfaction. Also, in Feldman and Snyder study (Feldman and Snyder 2005), meaning in life moderated the relationship between hope and depression.

Model number 14 Process macro in SPSS with spiritual experiences as an independent variable, hope as a mediator, meaning in life as a moderator, and hopelessness as a dependent variable was tested.

The interactional effect of the influence of meaning in life and hope on feelings of hopelessness was as follows: ($t = 4.22$ [LL = 0.086 to UL = 0.240], moderating effect = 0.016, $p < 0.01$), which means that meaning in life is a moderator in the relationship between hope and feelings of hopelessness. According to statistical nomenclature, moderated mediation (Hayes 2018) was positively verified. Moderated mediation index value was 0.0023 (LL = 0.086 to UL = 0.240). Conditional effects of hope at values of the moderator, such as meaning in life, are presented in Table 4.

Table 4. Conditional effects of hope at values of moderator (meaning in life).

	Effect	SE	t	p	LLCI	ULCI	
	−14.838	−0.447	0.093	−4.78	0.0000	−0.634	−0.260
	0.000	−0.205	0.066	−3.08	0.0030	−0.338	−0.072
	14.838	0.036	0.081	0.448	0.6554	−0.126	0.200
meaning in life as a moderator							

(Source: author’s research). LLCI = 95% Confidence Interval (Low); ULCI = 95% Confidence Interval (High).

Among AA participants who scored less than average and average on meaning in life, their hope was related with a lower level of hopelessness. In a group of AA members who had a more than average level of meaning in life, feelings of hopelessness were independent from hope.

5. Discussion

The purpose of the study was to explore the spiritual mechanisms behind indirect influences of spiritual experiences in a sample of Polish AA participants on their mental health through their abstinence duration, meaning in life, and hope.

The first hypothesis, concerning the indirect relationship between the spiritual experiences and the feelings of hopelessness through abstinence duration, was fully confirmed. Consistent with previous research, the spiritual growth of this social group were conducive to maintaining abstinence from alcohol (Carter 1998; Polcin and Zemore 2004; Brown et al. 2007; Tonigan et al. 2017), but inconsistent with recent studies on abstinence duration was related to worsened mental health (De Soto et al. 1989; Kraemer et al. 2002; Moos et al. 2001; Cohn et al. 2003). On the one hand, the positive role of spiritual growth in maintaining alcohol abstinence in AA participants was confirmed. On the other hand, unexpectedly unfavorable effects of abstinence duration on mental health were revealed. The more frequent the spiritual experiences they felt, the longer the abstinence they achieved, which in turn is related to a more pessimistic evaluation of the past as a manifesting cognitive symptom of depression. This discrepancy can be explained by differences between a lack of dysfunctional symptoms and positive wellbeing manifestations as well as critical evaluation of the pasts of AA participants. The specificity of Beck Hopelessness Scale regarding pessimistic attitude toward the past could have influenced the obtained results. A more negative evaluation of past events in this population, which was linked with abstinence, can be a coping strategy leading to a better evaluation of current sober life in contrast to earlier life. Recent research in a Polish sample of AA meeting participants confirmed that abstinence duration as a consequence of spiritual experiences leads to higher life satisfaction (Wnuk 2021a). However, hopelessness is a negative indicator of mental health, but life satisfaction is a positive, cognitive indicator of subjective wellbeing. The lack of dysfunctions and disorders is not identical to the manifestation of wellbeing and happiness (Diener and Seligman 2002).

One may try to explain the indirect mechanisms of influence of spiritual experiences on feelings of hopelessness through abstinence duration using the social learning theory based on norms, models, imitation, and conformity as well as social control theory, which focuses on the provision of support, goal direction, and monitoring (Moos 2011). People addicted to alcohol using the support of AA mutual assistance groups learn by imitating other participants in AA meetings; they learn attitudes that promote spiritual growth and the maintenance of abstinence as a social norm. Spiritual experiences enhance their feelings of bond with others (particularly with other participants in the meetings) and with God, increasing their motivation to maintain abstinence, the loss of which may be associated with ostracism from other participants in AA meetings as a form of punishment or symbolic exclusion from the group. This can explain the positive associations between abstinence duration and feelings of hopelessness because the maintenance of abstinence is a *conditio sine qua non* of recovery, but it seems to be an insufficient element for good mental health. Additionally, abstinence is not the same as sobriety. Abstinence exclusively refers to the symptoms of the disease, while sobriety is something deeper, manifesting in emotional and mental dimensions (Helm 2019).

The second hypothesis, postulating indirect relationship between spiritual experiences and feelings of hopelessness through hope, was fully confirmed. The obtained results, the same as that found in recent research, indicated the positive role of spiritual growth in hope in Polish addicted individuals using the support of AA and their co-addicted partners attending Al-Anon meetings (Wnuk 2015; Wnuk 2021a). Additionally, hope was found to have a beneficial influence on their mental health, both as a predictor and protective factor against cognitive aspects of depression. These results are consistent with previous studies indicating that hope in AA participants is correlated with lowered levels of negative indicators, such as depression, anxiety (May et al. 2015), and stress (Wnuk 2017), as well as with high levels of positive outcomes, such as a positive evaluation of life and life satisfaction (Wnuk 2017; Wnuk 2021a). The results have shown that in a sample of AA

participants, hope fills two positive roles in recovery from addiction in individuals in Poland. Firstly, as an important factor in the relationship between spiritual experiences and cognitive symptoms of depression, the spiritual growth of AA participants is associated with higher levels of hope, which in turn is related to their better mental health. Hope facilitates recovery through consolidating the changes taking place during the therapeutic process (Yalom and Leszcz 1985; Prochaska et al. 1992). A source of hope can be spiritual growth that reflects a feeling of unity with other people, with the world, or with God, which leads to a positive perspective marked by forward-looking optimism, reconciliation with the past, and the consolidation of one's life in the present. In a study by Mason et al. (2009), 75% of the individuals reported that faith and spirituality were important elements in the process of treatment, providing them with hope and helping them cope with addiction.

Second, hope is an element protecting against feelings of hopelessness in a group of AA participants who had difficulty with finding purpose and meaning in life and to a lesser extent among these addicted individuals, which reported an average level of meaning in life. It should be added that in this first group, the effect of hope protecting against cognitive depression symptoms was more than that in this second group.

It is worth noting that the construct of hopelessness should not be equated with the lack of hope. Hope explains only 9% of the variance in hopelessness, which is evidence that these are different research constructs.

Additionally, the third hypothesis regarding the role of meaning in life in the indirect relationship between spiritual experiences and feelings of hopelessness was positively verified. Furthermore, the moderating role of meaning in life in the link between hope and feelings of hopelessness was found. This means that finding meaning in life as a consequence of more frequent spiritual experiences predicts better mental health both autonomously and in the interaction with hope. In a group of research participants with high levels of meaning in life, hope was not related to feelings of hopelessness, which means that for alcohol addicted individuals whose lives are purposeful and have meaning, hope is not a necessary factor to be free from cognitive depressive symptoms. Relating to recent research, the beneficial effects of spiritual experiences in finding meaning in life was confirmed (Lyons et al. 2011), the same as the positive role of a purposeful and meaningful life in mental health (Stewart et al. 2017). It is worth notice that in a Stewart et al. study (Stewart et al. 2017) most participants declared Protestants, not Roman-Catholics affiliation. Spirituality was operationalized not as an observable, but latent variable, the same as psychological wellbeing. These facts could have an impact on achieved results in comparison to this study.

The role of meaning in life in the indirect relationship between spiritual experiences and feeling of hopelessness can be explained by the spiritual mechanism of recovery in which spiritual growth is conducive to finding meaning in the events taking place, thus facilitating recovery from addiction for people attending AA meetings (Lyons et al. 2010). Neff and MacMaster (2005) presented a model based on the assumptions of the social learning theory, the model of health behavior, and the theory of reasoned action, according to which an increase in meaning in life, just like a change in the perception of God, and an increase in positive coping mechanisms or self-acceptance are the outcomes of social learning promoting a spiritual transformation that has a positive influence on changes in behavior. This consequently leads to an improvement in wellbeing.

The study has certain theoretical implications. Firstly, it highlights the significant role spiritual experiences of alcohol-addicted individuals attending AA meetings has on their mental health. It confirms the presence of three mechanisms of indirect influences of spiritual experiences on feelings of hopelessness through abstinence, through hope, and through finding meaning and purpose in life. Additionally the moderating effect of meaning in life on AA members' relationship between hope and feelings of hopelessness was identified. On the one hand, even in the group with problems finding meaning in life (lower-than-average meaning in life), this variable was not related to depressive symptoms because of the positive influence of hope. On the other hand, in the group in which

members declared a higher-than-average level of meaning in life, hope was not connected with depression.

The practical implications of the obtained results can be addressed to therapists, psychologists, psychiatrists, and social workers providing treatment and support for people addicted to alcohol. Furthermore, this work places emphasis on the fact that, in this social group, the element that is crucial for maintaining abstinence and good mental health is spiritual growth. This spiritual growth can be achieved through religious or secular ways of life. The first one is based on a commitment to religious practices, such as prayer and Mess attendance (Wnuk 2021a). The second one, for example, reflects involvement in AA (Krentzman et al. 2013, 2017).

6. Limitations and Future Research

The present study has certain limitations. The first one is its external validity, namely, the possibility of generalizing the results beyond populations of alcohol-addicted individuals from Poland and its vicinity who attend AA meetings.

Another limitation stems from the fact that the study was cross-sectional, which means it was not possible to present the relations between the investigated variables in terms of cause and effect. The sample size was relatively small, and most participants had a relatively long AA membership and a long abstinence duration. The explored spiritual mechanisms should be verified in other cultural contexts, especially among nations less religious than Poland with more religious diversity and more races, more differentiated and by using a longitudinal research design and larger samples.

It would be interesting to use not unidimensional but bidimensional other meaning in life (Steger et al. 2006) and spiritual growth indicators. It is important to examine which aspects of spirituality are the strongest predictors of meaning in life, hope, and abstinence duration in AA participants.

To better understand the AA recovery process, other potential antecedents of meaning in life, hope, and abstinence duration, such as involvement in self-help groups, should be incorporated. Furthermore, it is necessary to verify which aspect of AA membership is the most important treatment factor.

Funding: This study was funded by author sources.

Institutional Review Board Statement: Ethical review and approval were waived for this study, due to non-potential harming influence.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy of the participants.

Conflicts of Interest: The author declares no conflict of interest.

References

- Aiken, Leona S., and Stephen G. West. 1991. *Testing and Interpreting Interactions in Multiple Regression*. Thousand Oaks: Sage Publications.
- Allen, John P. 2000. Measuring treatment process variables in Alcoholics Anonymous. *Journal of Substance Abuse Treatment* 18: 227–30. [CrossRef]
- Baumeister, Roy F., Jean M. Twenge, and Christopher K. Nuss. 2002. Effects of social exclusion on cognitive processes: Anticipated aloneness reduces intelligent thought. *Journal of Personality and Social Psychology* 83: 817–27. [CrossRef]
- Beck, Aaron T., Arlene Weissman, David Lester, and Larry Trexler. 1974. The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology* 42: 861–65. [CrossRef] [PubMed]
- Benzein, Eva, and Agneta Berg. 2003. The Swedish version of Herth Hope Index—An instrument for palliative care. *Scandinavian Journal of Caring Sciences* 17: 409–15. [CrossRef] [PubMed]
- Brown, Anthony E., Valory N. Pavlik, Ross Shegog, Simon N. Whitney, Lois C. Friedman, Catherine Romero, George Christopher Davis, Irina Cech, Thomas R. Kosten, and Robert J. Volk. 2007. Association of spirituality and sobriety during a behavioral spirituality intervention for twelve steps recovery. *The American Journal of Drug and Alcohol Abuse* 33: 611–17. [CrossRef]
- Byrne, Barbara M. 1994. *Structural Equation Modeling with EQS and EQS/Windows*. Thousand Oaks: SAGE Publications.

- Carter, Toni M. 1998. The effect of spiritual practices to recovery from substance abuse. *Journal of Psychiatric and Mental Health Nursing* 5: 409–13. [[CrossRef](#)]
- Çevik, Cahide, Yeliz Cığerci, İbrahim Kılıç, and Serpil Uyar. 2020. Relationship between smartphone addiction and meaning and purpose of life in students of health sciences. *Perspectives in Psychiatric Care* 56: 705–11. [[CrossRef](#)] [[PubMed](#)]
- Cohn, Tom J., John F. Foster, and Timothy J. Peters. 2003. Sequential studies of sleep disturbance and quality of life in abstaining alcoholics. *Addiction Biology* 8: 455–62. [[CrossRef](#)] [[PubMed](#)]
- Corrington, James E. 1989. Spirituality and recovery: Relationships between levels of spirituality, contentment and stress during recovery from alcoholism in AA. *Alcoholism Treatment Quarterly* 6: 151–65. [[CrossRef](#)]
- Crumbaugh, James C., and Leonard T. Maholick. 1964. An experimental study an existentialism, the psychometric approach to Frank's concept of noogenic neurosis. *The Journal of Clinical Psychiatry* 20: 200–7.
- De Soto, Clinton B., William E. O'Donnell, and Janet L. de Soto. 1989. Long-term recovery in alcoholics. *Alcoholism: Clinical and Experimental Research* 13: 693–97.
- Diener, Ed., and Martin E. P. Seligman. 2002. Very happy people. *Psychological Science* 13: 81–85. [[CrossRef](#)]
- Dufault, Karin, and Benita C. Martocchio. 1985. Symposium on compassionate care and the dying experience. Hope: Its sphere and dimensions. *Nursing Clinical North American* 20: 379–91.
- Durham, Thomas W. 1982. Norms, reliability, and items analysis of the Hopelessness Scale in general psychiatric, forensic psychiatric, and college populations. *Journal of Clinical Psychology* 38: 597–600. [[CrossRef](#)]
- Feldman, David B., and C. Richard Snyder. 2005. Hope and the meaningful life: Theoretical and empirical associations between goal-directed thinking and life meaning. *Journal of Social and Clinical Psychology* 24: 401–21. [[CrossRef](#)]
- Geppert, Cynthia, Michael P. Bogenschutz, and William R. Miller. 2007. Development of a bibliography on religion, spirituality and addictions. *Drug and Alcohol Review* 26: 389–95. [[CrossRef](#)] [[PubMed](#)]
- Gutierrez, Daniel. 2019. Spiritus contra spiritum: Addiction, hope, and the search for meaning. *Spirituality in Clinical Practice* 6: 229–39. [[CrossRef](#)]
- Newcomb, Michael D., and Lisa L. Harlow. 1986. Life events and substance use among adolescents: Mediating effects of perceived loss of control and meaninglessness in life. *Journal of Personality and Social Psychology* 51: 564–77. [[CrossRef](#)]
- Harlow, Lisa L., Michael D. Newcomb, and P. M. Bentler. 1986. Depression, self-derogation, substance use, and suicide ideation: Lack of purpose in life as a mediational factor. *Journal of Clinical Psychology* 42: 5–21.
- Haugan, Gørill. 2014. Nurse-patient interaction is a resource for hope, meaning in life and self-transcendence in nursing home patients. *Scandinavian Journal of Caring Sciences* 28: 74–88. [[CrossRef](#)] [[PubMed](#)]
- Hayes, Andrew F. 2018. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. New York: Guilford Press.
- Helm, Paula. 2019. Sobriety versus abstinence. How 12-stepper negotiate long-term recovery across groups. *Addiction Research and Theory* 27: 29–36. [[CrossRef](#)]
- Herth, Kaye. 1991. Development and refinement of an instrument to measure hope. *Scholarly Inquiry for Nursing Practice* 5: 39–51.
- Hirsch, Jameson K., Preston L. Visser, Edward C. Chang, and Elizabeth L. Jeglic. 2012. Race and ethnic differences in hope and hopelessness as moderators of the association between depressive symptoms and suicidal behavior. *Journal of American College Health* 60: 115–25. [[CrossRef](#)]
- Holden, Ronald R., and Cynthia G. Fekken. 1988. Test-retest reliability of the Hopelessness Scale and its items in university population. *Journal of Clinical Psychology* 44: 40–43. [[CrossRef](#)]
- Jérolon, Allan, Laura Baglietto, Etienne Birmelé, Flora Alarcon, and Vittorio Perduca. 2020. Causal mediation analysis in presence of multiple mediators uncausally related. *The International Journal of Biostatistics*. [[CrossRef](#)]
- Kanas, Nick, and Mary A. Barr. 1981. Outpatient alcoholics view group therapy. *Group: The Journal of the Eastern Group Psychotherapy Society* 6: 17–20. [[CrossRef](#)]
- Kaskutas, Lee Ann, Lyndsay Ammon, Kevin Delucchi, Robin Room, Jason Bond, and Constance Weisner. 2005. Alcoholics Anonymous careers: Patterns of AA involvement five years after treatment entry. *Alcoholism: Clinical and Experimental Research* 29: 1983–90. [[CrossRef](#)]
- Kelly, John F., Claire M. Greene, and Brandon G. Bergman. 2018. Beyond abstinence: Changes in indices of quality of life with time in recovery in a nationally representative sample of U.S. adults. *Alcoholism, Clinical and Experimental Research* 42: 770–80. [[CrossRef](#)]
- Kelly, John F., Robert L. Stout, Molly Magill, J. Scott Tonigan, and Maria E. Pagano. 2011. Spirituality in recovery: A lagged mediational analysis of alcoholics anonymous' principal theoretical mechanism of behavior change. *Alcoholism, Clinical and Experimental Research* 35: 454–63. [[CrossRef](#)] [[PubMed](#)]
- Kline, Rex B. 1998. *Principles and Practice of Structural Equation Modeling*. New York: Guilford Press.
- Koushede, Vibeke, and Bjørn E. Holstein. 2009. Sense of coherence and medicine use for headache among adolescents. *The Journal of adolescent health: Official publication of the Society for Adolescent Medicine* 45: 149–55. [[CrossRef](#)]
- Kraemer, Kevin L., Stephen A. Maisto, Joseph Conigliaro, Melissa McNeil, Adam J. Gordon, and Mary E. Kelley. 2002. Decreased alcohol consumption in outpatient drinkers is associated with improved quality of life and fewer alcohol-related consequences. *Journal of General Internal Medicine* 17: 382–86. [[CrossRef](#)]

- Krentzman, Amy R., James A. Cranford, and Elizabeth Robinson. 2013. Multiple dimensions of spirituality in recovery: A lagged mediational analysis of Alcoholics Anonymous' principal theoretical mechanism of behavior change. *Substance Abuse* 34: 20–32. [CrossRef]
- Krentzman, Amy R., Stephen Strobbe, J. Irene Harris, Jennifer M. Jester, and Elizabeth Robinson. 2017. Decreased drinking and alcoholics anonymous are associated with different dimensions of spirituality. *Psychology of Religion and Spirituality* 9: S40–S48. [CrossRef]
- Krok, Dariusz. 2015. The role of meaning in life within the relations of religious coping and psychological well-being. *Journal of Religion and Health* 54: 2292–308. [CrossRef]
- Lyons, Geoffrey C. B., Frank P. Deane, and Peter J. Kelly. 2010. Forgiveness and purpose in life as spiritual mechanisms of recovery from substance use disorders. *Addiction Research Theory* 18: 528–43. [CrossRef]
- Lyons, Geoffrey C. B., Frank P. Deane, Peter Caputi, and Peter J. Kelly. 2011. Spirituality and the treatment of substance use disorders: An exploration of forgiveness, resentment and purpose in life. *Addiction Research & Theory* 19: 459–69.
- Magura, Stephe, Edward L. Knight, Howard S. Vogel, Daneyal Mahmood, Alexandre B. Laudet, and Andrew Rosenblum. 2003. Mediators of effectiveness in dual-focus self-help groups. *The American Journal of Drug and Alcohol Abuse* 29: 301–22. [CrossRef] [PubMed]
- Mason, Sarah J., Frank P. Deane, Peter J. Kelly, and Trevor P. Crowe. 2009. Do spirituality and religiosity help in the management of cravings in substance abuse treatment? *Substance Use and Misuse* 44: 1926–40. [CrossRef]
- May, Emily M., Bronwyn A. Hunter, Joseph Ferrari, Nicole Noel, and Leonard A. Jason. 2015. Hope and abstinence self-efficacy: Positive predictors of negative affect in substance abuse recovery. *Community Mental Health Journal* 51: 695–700. [CrossRef]
- Menard, Scott. 2001. *Applied Logistic Regression Analysis*, 2nd ed. London: Sage Publications.
- Moos, Rudolf H. 2011. Processes that promote recovery from addictive disorders. In *Addiction Recovery Management: Theory, Research and Practice*. Edited by John F. Kelly and William L. White. Totowa: Humana Press, pp. 45–66.
- Moos, Rudolf, Jeanne Schaefer, Jill Andrassy, and Bernice Moos. 2001. Outpatient mental health care, self-help groups, and patients' one-year treatment outcomes. *Journal of Clinical Psychology* 57: 273–87. [CrossRef] [PubMed]
- Morjaria, Aseha, and Jim Orford. 2002. The role of religion and spirituality in recovery from drink problem: A qualitative study of Alcoholics Anonymous members and South Asian men. *Addiction Research Theory* 10: 225–56. [CrossRef]
- Nayeri, Nahid Dengham, Amir Hossein Goudarzian, Kaye Naghavi Herth, Nia Navaz, Hamid Sharif, Ameneh Yaghoobzadeh, Saeed Pahlevan Sharif, and Kelly-Ann Allen. 2020. Construct validity of the Herth Hope Index: A systematic review. *International Journal of Health Sciences* 14: 50–57.
- Nealon-Woods, Michele, Joseph R. Ferrari, and Leonard A. Jason. 1995. Twelve-step program use among Oxford House residents: Spirituality or social support in sobriety? *Journal of Substance Abuse* 7: 311–18. [CrossRef]
- Neff, J. Alan, and Samuel A. MacMaster. 2005. Spiritual mechanisms underlying substance abuse behavior change in faith-based substance abuse treatment. *Journal of Social Work Practice in the Addictions* 5: 33–54. [CrossRef]
- Nell, Werner, and Sebastiaan Rothmann. 2018. Hope, religiosity, and subjective well-being. *Journal of Psychology in Africa* 28: 253–60. [CrossRef]
- Nicholson, Thomas, Wayne Higgins, Paul Turner, Susan James, Fred Stickle, and Terry Pruitt. 1994. The relation between meaning in life and the occurrence of drug abuse: A retrospective study. *Psychology of Addictive Behaviors* 8: 24–28. [CrossRef]
- Pardini, Dustin A., Thomas G. Plante, Allen Sherman, and Jamie E. Stump. 2000. Religious faith and spirituality in substance abuse recovery: Determining the mental health benefits. *Journal of Substance Abuse Treatment* 19: 347–54. [CrossRef]
- Park, Crystal L. 2007. Religiousness/spirituality and health: A meaning systems perspective. *Journal of Behavioral Medicine* 30: 319–28. [CrossRef]
- Pew Research Center. 2018. Eastern and Western Europeans Differ on Importance of Religion, Views of Minorities, and Key Social Issues. Available online: <https://www.pewforum.org/2018/10/29/eastern-and-western-europeans-differ-on-importance-of-religion-views-of-minorities-and-key-social-issues/> (accessed on 17 September 2021).
- Polcin, Douglas E., and Sarah E. Ziemore. 2004. Psychiatric severity and spirituality, helping, and participation in alcoholics anonymous during recovery. *The American Journal of Drug and Alcohol Abuse* 30: 577–92. [CrossRef]
- Preacher, Kristopher J., and Andrew F. Hayes. 2008. Contemporary approaches to assessing mediation in communication research. In *The Sage Sourcebook of Advanced Data Analysis Methods for Communication Research*. Edited by Andrew F. Hayes, Michael D. Slater and Leslie B. Snyder. Thousand Oaks: Sage Publications, pp. 13–54.
- Prochaska, James O., Carlo C. DiClemente, and John C. Norcross. 1992. In search of how people change: Applications to addictive behaviors. *American Psychologist* 47: 1102–14. [CrossRef]
- Robinson, Elizabeth A., Amy R. Krentzman, Jon R. Webb, and Kirk J. Brower. 2011. Six-month changes in spirituality and religiosity in alcoholics predict drinking outcomes at nine months. *Journal of Studies on Alcohol and Drugs* 72: 660–68. [CrossRef]
- Siek, Stanisław. 1993. *Selected Methods of Personality Study*. Warsaw: Academy of Catholic Theology.
- Silberman, Israella. 2005. Religion as a meaning system: Implications for the new millennium. *Journal of Social Issues* 61: 641–63. [CrossRef]
- Steger, Michael F., Frazier Patricia, Oishi Shigehiro, and Matthew Kaler. 2006. The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology* 53: 80–93. [CrossRef]
- Steiger, James. H. 1990. Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research* 25: 173–80. [CrossRef]

- Stewart, Chris, Gary F. Koeske, and Janice L. Pringle. 2017. The relationship between spirituality and overall health in African American substance abuse clients. *Social Work and Christianity* 44: 39–59.
- Tonigan, J. Scott, Elizabeth A. McCallion, Tessa Frohe, and Matthew R. Pearson. 2017. Lifetime Alcoholics Anonymous attendance as a predictor of spiritual gains in the Relapse Replication and Extension Project (RREP). *Psychology of Addictive Behaviors: Journal of the Society of Psychologists in Addictive Behaviors* 31: 54–60. [[CrossRef](#)]
- Tonigan, J. Scott, Gerard J. Connors, and William R. Miller. 1996. Alcoholics Anonymous Involvement (AAI) scale: Reliability and norms. *Psychology of Addictive Behaviors* 10: 75–80. [[CrossRef](#)]
- Twelve Steps and Twelve Traditions. 1987. *Twelve Steps and Twelve Traditions*. New York: Alcoholics Anonymous Inc.
- Underwood, G. Lynn. 2011. The Daily Spiritual Experience Scale: Overview and results. *Religions* 2: 29–50. [[CrossRef](#)]
- Wnuk, Marcin. 2015. Religious–spiritual sources of hope and the meaning of life in alcohol co-dependent subjects receiving support in self-help groups. *Journal of Substance Use* 20: 194–99. [[CrossRef](#)]
- Wnuk, Marcin. 2017. Hope as an important factor for mental health in alcohol-dependent subjects attending Alcoholics Anonymous. *Journal of Substance Use* 22: 182–86. [[CrossRef](#)]
- Wnuk, Marcin. 2021a. Indirect relationships between spiritual experiences and life satisfaction among Alcoholics Anonymous from Poland. Mediating role of hope, optimism and abstinence. *Journal of Religion and Health*. in review.
- Wnuk, Marcin. 2021b. Religion and Life Satisfaction of Polish Female Students Representing Roman Catholic Affiliation: Test of Empirical Model. *Religions* 12: 597. [[CrossRef](#)]
- Wnuk, Marcin, and Jerzy T. Marcinkowski. 2014. Do existential variables mediate between religious-spiritual facets of functionality and psychological wellbeing. *Journal of Religion and Health* 53: 56–67. [[CrossRef](#)]
- Wnuk, Marcin, Jerzy T. Marcinkowski, and Hędzulek Mateusz. 2009. Indirect relationship between spiritual experiences and wellbeing among co-dependent persons. *Psychiatry* 6: 82–90.
- Yalom, Irwin D., and Molin Leszcz. 1985. *The Theory and Practice of Group Psychotherapy*, 3rd ed. New York: Basic Books.
- Zarzycka, Beata, Jacek Śliwak, Dariusz Krok, and Paweł Cizek. 2019. Religious comfort and anxiety in women with cancer: The mediating role of hope and moderating role of religious struggle. *Psycho-Oncology* 28: 1829–35. [[CrossRef](#)] [[PubMed](#)]
- Zhang, Meng Xuan, Hong Mian Yang, Kwok-Kit Tong, and Anise M. S. Wu. 2020. The prospective effect of purpose in life on gambling disorder and psychological flourishing among university students. *Journal of Behavioral Addictions* 9: 756–65. [[CrossRef](#)] [[PubMed](#)]
- Zylstra, Robert E. 2006. The use of spirituality in alcohol recovery. *Southern Medical Journal* 99: 643. [[CrossRef](#)] [[PubMed](#)]