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# The relationships between prayer and emotional well-being as well as sexual abstinence among diagnosed with obsessive-compulsive sexual behaviors

Marcin Wnuk<sup>1</sup>✉

Prayer is a spiritual practice that can lead to beneficial effects. Prayer is especially significant in the recovery process in a sample of individuals diagnosed with obsessive-compulsive sexual behaviors (OCSB) who participate in mutual self-help groups in Poland. The purpose of this study was to examine whether gratitude to God/higher power mediates the relationship between prayer and hope, which in turn is related to sexual abstinence and both positive and negative affect. In the study, 80 Polish individuals diagnosed with OCSB who attended Sexaholics Anonymous (SA) meetings participated. The mechanisms underlying the link between prayer and sexual abstinence and prayer and emotional well-being were confirmed. Through gratitude to God/higher power, prayer was indirectly related to hope and negative affect. In addition, prayer indirectly predicted sexual abstinence and positive affect through the pathway of gratitude to God/higher power and hope. The beneficial role of prayer as a spiritual practice in recovery among members of SA diagnosed with OCSB was therefore confirmed. These findings should be an incentive for practitioners, therapists, medics, social workers, and psychologists to recommend prayer, as well as gratitude and hope, in interventions aimed at Polish patients suffering from OCSB.

<sup>1</sup> Adam Mickiewicz University, Poznań, Poland. ✉email: [marwnu@amu.edu.pl](mailto:marwnu@amu.edu.pl)

## Introduction

**O**bsessive-compulsive sexual behaviors (OCSB) are a serious social problem leading to mental, emotional, physical, and spiritual suffering in diagnosed individuals (Grubbs et al., 2020). In the 11th edition of the International Classification of Diseases (ICD-11) of the World Health Organization (2018), this phenomenon is defined as “a persistent pattern of failure to control intense, repetitive sexual impulses or urges resulting in repetitive sexual behavior,” which manifests for at least six months and causes significant distress or marked impairment in important areas of functioning (Kraus et al., 2018).

Among different professional methods of treatment, such as cognitive-behavioral therapy, mindfulness-based therapy, emotion-focused therapy, and pharmacological therapy, mutual self-help groups have been developed as a form of support and a potential cure for individuals suffering from OCSB (Efrati & Gola, 2018). In Poland, these groups are based on the heritage of Alcoholics Anonymous (AA), which has supported dependents on alcohol through recovery since 1973 (Tadeusz, 2012). Accordingly, it should be treated by restoring the individual's relationship with God or another higher power, with spiritual growth considered a crucial element of recovery (AA, 2001; Sexaholics Anonymous SA, 1989).

While recent research has confirmed positive outcomes of spiritual growth in behavior and substance-dependent individuals participating in mutual self-help groups (Krentzman et al., 2015; Krentzman et al., 2012; Polcin & Zamore, 2004; Wnuk, 2022a; Wnuk & Charzyńska, 2022), the role of prayer was only considered in two papers (Wnuk, 2017; Wnuk, 2025).

Prayer is a significant element of the spiritual growth of mutual self-help group members, which results not only from adherence to the principles contained in the 12-Step Program, but also from religious involvement as religious-affiliated individuals expressing their religiosity in this way. For religiously inclined participants of mutual-aid groups, prayer can strengthen the tendency to communicate with God/higher power, search for support in this relationship, and begin the healing process. Taking into account that for Poles, God and prayer are especially significant values in life (Pew Research Center, 2020), prayer could play a special role in the recovery process of individuals diagnosed with OCSB participating in self-help groups in Poland. First, religious involvement has been positively correlated with happiness in more religious countries (Diener et al., 2011). In addition, more benefits from involvement in religious practices are reaped among those who define themselves as religious and spiritual than among those who define themselves only as religious (Nadal et al., 2018; Shahabi et al., 2002). For example, Ivtzan et al. (2013) divided participants into four groups exhibiting (1) a high level of religious and spiritual involvement, (2) a low level of religion and a high level of spirituality, (3) a high level of religious involvement with a low level of spirituality, and (4) a low level of religious involvement and spirituality. The results indicated that the first group displayed better psychological well-being, which was verified through their self-actualization, the ability to find meaning in life, and personal growth initiatives.

The majority of Sexaholics Anonymous (SA) participants in Poland can be classified as both religious and spiritual, or at least spiritual. Some of these individuals use prayer in association with their religious affiliation, but everyone is encouraged to engage in spiritual growth through prayer in accordance with the Twelve-Step Program's guidelines.

Nevertheless, the phenomenon of prayer in Twelve-Step Program participants has not been sufficiently studied. While some studies have indicated that prayer plays a beneficial role in alcohol-dependent individuals' recovery, the mechanisms behind this influence have not been adequately explained (Koski-Jänenes

& Turner, 1999; Petrova et al., 2015). From the social stigma perspective, alcohol dependence is less socially unacceptable than involvement in compulsive sexual behaviors (Dickenson et al., 2018), which can lead to the intensification of shame and guilt (Gilliland et al., 2011), especially in religiously affiliated individuals (Coleman et al., 2023). Religiosity may increase the moral disapproval (incongruence) resulting from engagement in sexual behaviors, evoking the conflict between sexual activity and internalized values (Grubbs et al., 2019). This favors interpreting sexual behaviors like watching pornography, masturbation, or promiscuity in the category of sin and leads to excessive feelings of guilt. Coleman et al. (2023) confirmed that religious commitment is positively, indirectly related to compulsive sexual behavior through moral disapproval.

In contradiction to these conclusions, some research found opposite outcomes, indicating the benefits of religious involvement in predicting lower rates of risky sexual behavior (Smith, 2015), cybersex (Ghoroghi et al., 2017), and pornography use (Wright et al., 2013). Also, Wnuk and Charzyńska (2024) in their study showed that in individuals diagnosed with OCSB who participated in self-help groups, religiosity could serve as a meaning-oriented system. They confirmed that subjective religiosity facilitates finding meaning in life directly and indirectly, through forgiveness by God/higher power. Also, participation in self-help groups is an effective way of recovery for individuals who struggle with OCSB. Recent research found involvement in self-help groups in predicting subjective well-being thanks to instilled hope (Wnuk & Charzyńska, 2022) and spiritual growth (Wnuk et al., 2024). This study aims to verify mechanisms underpinning the relationships between prayer and sexual abstinence and prayer and emotional well-being in SA participants diagnosed with OCSB and the role of gratitude to God/higher power and hope in these connections.

## Prayer and hope: the role of gratitude to God/higher power

One of the more influential perspectives in this vein is the widely recognized conviction of William James (1958) regarding prayer as communion or conversation with a power recognized as divine, which serves as the foundation for building a relationship with God or the divinity that leads to certain physiological, psychological, sociological, and spiritual effects (Andrade, Radhakrishnan (2009); Breslin & Lewis, 2008; Spilka & Ladd, 2013). As previous research has shown, prayer is positively correlated with spiritual experiences (Wnuk, 2023) and negatively related to stress and cardiovascular reactivity (Cooper et al., 2014). It can also be successfully used as an effective method of coping with different life circumstances (Ai et al., 2010; Wachholtz & Sambamthoori, 2013), as in the case of facilitating adaptability to chronic pain (Dezutter et al., 2011).

The psychological approach to determining the function of prayer and its link to health and well-being (Breslin & Lewis, 2008) focuses on hope as a factor connected to spiritual practice (Levin, 1996; McCullough, 1995; Watts, 2001). Due to prayer, hope can be built on trust-based prayer beliefs (Krause & Hayward, 2013), a feeling of forgiveness by God (Lawler-Row, 2010), or being grateful as a gift from God (Krentzman, 2019; Schnitker & Richardson, 2019), each of which gives a sense of meaning, stability, safety, coherence, and predictability along the pathway to achieving the desired goals and strengthening the motivation and persistence required to reach them.

In SA participants, prayer can serve as a coping method (Ai et al., 2010; Wachholtz & Sambamthoori, 2013) with emotional pain (shame, guilt, sadness) (Gilliland et al., 2011), anxiety, depression (Privara & Bob, 2023), and distress connected with

failing to control one's sexual feelings and behaviors (Dickenson et al., 2018), which among religious individuals is enhanced by moral disapproval (Grubbs et al., 2019). The awareness of acting against one's moral values and the incapability to resist sexual obsession and compulsions is a source of spiritual and emotional suffering.

Some authors emphasize problems with coping (Coleman et al., 2018; Giugliano, 2006; Hall, 2011), emotional regulation (Benfield, 2018; Coleman et al., 2018; Giugliano, 2006; Hall, 2011), and insecure attachment (Benfield, 2018; Coleman et al., 2018; Hall, 2011) as a source of OCSB. Prayer can be a way to develop coping capabilities, improve emotional regulation, and build a secure attachment with God/higher power, serving as a framework for social ties. The concept of God/higher power plays a significant role in the recovery of substance and behavioral-dependent Poles participating in mutual self-help groups (Niemyska et al., 2018; Wnuk & Charzyńska, 2024). According to the 12-step program, restoration of one's relationship with God/higher power and the transformation of God's concept from cruel, distancing, absent, punishing, and abandoning into trustworthy, caring, merciful, and loving take place in the third step (Twelve Steps and Twelve Traditions, 1953), which can happen after the first six months of self-help groups participation. For self-help group members, there is an incentive to recognize God/higher power as a benefactor and build a relationship with this entity by implementing the 11th step, which entails the understanding that God/higher power takes care of the future and following Him will support one in achieving sobriety and satisfying life (Twelve Steps and Twelve Traditions, 1953). Wnuk and Charzyńska (2024) confirmed the forgiving image of God/higher power as a positive predictor of interpersonal forgiveness and the presence of meaning in life in members of Sexaholics Anonymous from Poland. On the other side, anger toward God correlated positively with compulsive access efforts to cyber pornography use (Wilt et al., 2016).

A positive perception of God/higher power of individuals dependent on sexual behaviors is necessary for building gratitude to God/higher power and a trusting bond. More extensive research regarding the notion of God/higher power as a benefactor within 12-step programs is needed (Krentzman, 2019), especially given that gratitude toward God/higher power takes up a special place in treatment (recovery) offered by mutual-aid groups (AA, 2001; SA, 1989). Gratitude is the reaction to receiving something valuable, significant, and desirable from others (Emmons & Mishra, 2010), which does not necessarily need to be identified with human beings but which instead can be personified by God/higher power (McCullough et al., 2002). In particular, spiritually oriented individuals are more inclined to attribute gratitude to non-human agents like God//higher power (McCullough et al., 2004). Prayer practice can be an opportunity to build a secure attachment to God/higher power and express adoration, thanksgiving, and reception after receiving any gift, and everything in this view deserves gratefulness (Whittington & Scher, 2010). In this vein, Lambert et al. (2009) conducted a longitudinal study showing that prayer positively influences dispositional gratitude. In another study involving a three-week intervention focused on spiritual practices, such as prayer or meditation, a significant increase in gratitude was noted (Olson et al., 2019). Schnitker and Richardson (2019) further confirmed that the mechanisms explaining the positive results of prayer are connected not to social features but to spiritual elements. In a group of participants who read out a list to God that included things they were thankful for, the gain in gratitude, hope, and positive affect was noticed in comparison with individuals reading their gratefulness lists to other people, where this effect did not occur. What is worth noting is that life satisfaction increased

and negative affect decreased for representatives of both of these groups.

Hypothesis 1: In the sample of SA participants from Poland, prayer will be positively related to gratitude to God//higher power.

Recent research has emphasized that prayer can positively influence hope (Schnitker & Richardson, 2019), and this topic has begun to be explored in the addiction literature as well (Wnuk, 2017; Wnuk & Charzyńska, 2022; Wnuk, 2025).

Within psychology, hope is considered a strength of character (Park et al., 2004), an emotion (Lazarus, 1999), and a personality trait (Snyder, 2002), which facilitates the achievement of personal-value life goals and leads to fulfillment. Regardless of the plethora of conceptions, the common elements of hope emphasized in the literature are its multi-dimensional character, essentiality to life, future orientation, personal significance, and goal orientation (Larsen et al., 2007; Scioli et al., 2011). In this study, Herth's conception of hope was used, according to which hope is defined as "a multi-dimensional dynamic life force characterized by a confident yet uncertain expectation of achieving good, which to the hoping person, is realistically possible and personally significant" (Herth 1992: p. 1253). It encompasses three elements of hope: temporality and future, positive readiness and expectancy, and interconnectedness. In this approach, hope is considered an emotion, the motivating force that comes from the perception that a future goal is achievable (Pleeging, 2022).

In Marcel's approach (1953), hope is a fundamental and immanent element of human existence, constituting our being's veritable response to life difficulties and threats such as illness, separation, and the death of relatives, giving us the possibility to overcome them. This concept of hope seems to be especially applicable to OCSB patients who need to struggle with problems with controlling intensive sexual urges and suffering connected with the emotional, social, and spiritual negative consequences of involvement in binge sexual behaviors (Hotchkiss, 2021). Prayer can be a source of hope, allowing for overcoming sexual habits thanks to bonding with God/higher power through the support received from that and a feeling of safety. In recent studies, the association between prayer and hope was found to be dependent on one's relationship with God (Wnuk, 2017; Wnuk, 2022a; Wnuk, 2025). For example, in a Polish sample of Sex and Love Addicts Anonymous (SLAA) participants, prayer was indirectly related to hope through spiritual experiences (Wnuk, 2017).

Both gratitude and hope are the two key concepts within positive psychology (Seligman, 2002) and significant Christian virtues (Marcel, 1953; Vo, 2014). Gratitude is focused on the past and regards thankfulness for what has already happened, whereas hope is both future- and goal-oriented. Gratitude toward God/higher power can instill hope insofar as awareness of the gifts received from God/higher power can serve as a basis for generating expectations that God will also fulfill one's needs in the future. However, there is no research showing the relationship between gratitude toward God/higher power and hope, and this study is therefore an attempt to fill this gap. Only one longitudinal study was found in reference to the gratitude-hope relationship, which implied that being grateful leads to hope (Witvliet et al., 2019). In this study, a gratitude intervention increased both hope and happiness, confirming that gratitude antecedents hope.

The above implications are relevant to understanding OCSB individuals participating in SA, as the requirement for successful treatment is reaching sexual abstinence as a condition of sobriety (SA, 1989). This can be achieved through an external agent identified as God/higher power or another higher power, who is perceived as a gift provider and thus takes care of the recovery process of the SA participants.

Hypothesis 2: In the sample of SA participants from Poland, gratitude to God/higher power will be positively related to hope.

Hypothesis 3: In the sample of SA participants from Poland, prayer will be indirectly positively related to hope through gratitude to God/higher power.

### **Hope, well-being, and recovery**

Hope has been identified as a significant factor in the mental health recovery process (Leamy et al., 2011; Koehn et al., 2012). For example, in a sample of 172 individuals with serious mental illness, hope was positively associated directly and indirectly through fulfilling the needs related to subjective well-being (Werner, 2012). Based on a review of the existing research, Leamy et al. (2011) established a conceptual framework of recovery that contains connectedness, identity, finding meaning in life, and empowerment as components of the process of building hope and optimism about the future. Some authors have shaped hope as the central point of therapy and used it as an indicator to measure treatment progress or success (Bartholomew et al., 2015; Feldman & Dreher, 2012).

Hope-focused interventions in substance abuse counseling are a well explored and recognized area of practice (Koehn et al., 2012). The benefits of hope for the recovery and well-being of dependent and codependent individuals participating in 12-step-based mutual-aid groups are well documented (Gutierrez, 2019; Magura et al., 2003; Mathis et al., 2009; May et al., 2015; Wnuk & Hędzelek, 2008; Wnuk & Charzyńska, 2022; Wnuk, 2022a; Wnuk, 2022b; Wnuk, 2025). In Magura et al.'s (2003) research, hope as a consequence of 12-step group affiliation predicted health-promoting behavior. In a later study, Gutierrez (2019) found that hope negatively predicts alcohol and drug use severity. In drug- or alcohol-dependent older adults from the United States, hope was one of the consequences of the recovery process and a negative predictor of relapse (Gutierrez et al., 2020). In May et al.'s (2015) study, hope, agency, and self-efficacy predicted depressive and anxiety symptoms among individuals in substance abuse recovery.

The role of hope in the recovery of OCSB patients is an underexplored area and thus requires extensive investigation. Thus far, only one study has been conducted on this topic (Wnuk & Hędzelek, 2008). This study was conducted among SLAA 12-step mutual-aid group participants from Poland, and according to the results, hope was positively correlated with desire for life, passion for life, feelings of happiness in a few recent days, and satisfaction with six domains of life, which included friends, health, perspective on the future, life achievements, ways of spending free time, and sex (Wnuk & Hędzelek, 2008). Despite its value, the study has two main limitations. First, the participants were not diagnosed in the study questionnaire with OCSB or sexual addiction, excessive sexual behavior, hypersexuality, or problematic sexual behavior (Grubbs et al., 2020). Additionally, the sample consisted of only 30 individuals.

Hypothesis 4: In the sample of SA participants from Poland, hope will be related to abstinence duration and emotional well-being.

It is important to verify the mechanisms underpinning the link between gratitude to God/higher power and well-being, and the role of hope in this relationship. This means that gratitude toward God/higher power may be related to emotional well-being and abstinence duration only indirectly via hope, only directly, or partially directly and indirectly. The lack of research on this topic undoubtedly makes it difficult to determine this relationship, but some suggestions on how to proceed are contained in previous research. Most existing studies have examined the general tendency of gratitude as a trait of character, without considering the

gratefulness attributable to God/higher power as a different gratitude manifestation (Aghababaei et al., 2018; Rosmarin et al., 2011). The available results imply that gratitude to God is an antecedent of generalized gratitude. For example, in Iranian and Polish samples, gratitude toward God was found to be a mediator in the relationship between intrinsic and two forms of extrinsic religious motivation and trait gratitude (Aghababaei et al., 2018). Only in one study was overall gratitude, aside from hope, tested as a predictor of subjective well-being (Macaskill, 2012). In this case, gratitude was positively correlated with positive affect in the same way as hope, but after the introduction of both these variables into the regression equation, only hope remained as the positive affect predictor, which meant that hope is a mediator in the relationship between gratitude and positive affect (Baron & Kenny, 1986).

Building on these studies, hope is expected to mediate the link between gratitude toward God/higher power and abstinence duration, as well as between gratitude toward God/higher power and emotional well-being. In other words, only an indirect relationship between gratitude toward God and abstinence duration, as well as emotional well-being, through hope is anticipated.

Hypothesis 5: In the sample of SA participants from Poland, prayer will be indirectly related to abstinence duration and emotional well-being through the pathway of gratitude to God/higher power and hope.

### **Methods**

**Participants.** The research sample consisted of 80 participants from SA meetings in Poland, with an average age of 38.96 years ( $SD = 10.56$ ). Most declared Roman Catholic denomination (82.5%), 2.5% declared to be followers of the Slavic religion, 2.5% were Jehovah's Witnesses, 11.2% declared that they had no religious denomination, and one person (1.3%) described himself as an agnostic. The majority had obtained higher education (78.8%), 18.8% graduated from secondary schools, and 2.4% completed vocational school. Almost half of the participants were married (45%), 51.3% were single, 2.5% were separated, and one individual (1.2%) was divorced.

Almost half of the participants (45%) currently used psychotherapeutic services, and almost everyone (93%) had used this service at least once in their lives. The average time that they had been participating in SA meetings was 47.48 months ( $SD = 32.86$ ). Co-occurring addictions declared included food (38.8%), internet (23.8%), alcohol (22.5%), nicotine addiction (17.5%), work (13.8%), gambling (6.3%), prescription drugs (6.3%), other drugs (3.8%), computer games (2.5%), and shopping (2.5%). Some participated in other mutual self-help groups, such as AA (15%), Overeaters Anonymous (10%), Adult Children of Alcoholics (5.0%), Financial Underearners Anonymous (3.8%), Narcotics Anonymous (1.3%), and Gamblers Anonymous (1.3%).

### **Measures**

**Frequency of prayer.** On a question referring to the frequency of prayer, participants reported how often they prayed, with possible responses including "never" (1), "sometimes" (2), "once monthly" (3), "once weekly" (4), or "every day" (5). This measure is used autonomously (Wnuk, 2017, Wnuk & Marcinkowski, 2014) or as a part consisting of three items of the Polish version of the Duke University Religion Index (DUREL) (Dobrowolska et al., 2016).

**Gratitude toward God/higher power.** Gratitude to God/higher power was measured by one question: "How grateful are you to God//higher power?" Responses were collected using a 7-point

scale with only the endpoints labeled (1 = “I am not grateful at all” to 7 = “I am very grateful”).

**Positive and negative affect.** The short version of the Polish translation (Wnuk & Marcinkowski, 2014) of the Positive and Negative Affect Schedule (PANAS; Crawford & Henry, 2004) was used to verify positive and negative affect. The short version consists of five of the ten strongest loading items for positive affect and five of the ten strongest loading items regarding negative emotional states. Confirmatory factor analysis confirmed the two-factor structure of this measure. Items regarding negative affect explained 34.33% of the variance in this measure, and items referring to positive affect explained 31.49%. Participants responded on a 5-point Likert scale (with responses ranging from 1 = “a little or none” to 5 = “very frequently”). The reliability scale varied from  $\alpha = 0.86$  to  $0.89$  for positive affect and  $\alpha = 0.84$  to  $0.85$  for negative affect (Crawford & Henry, 2004).

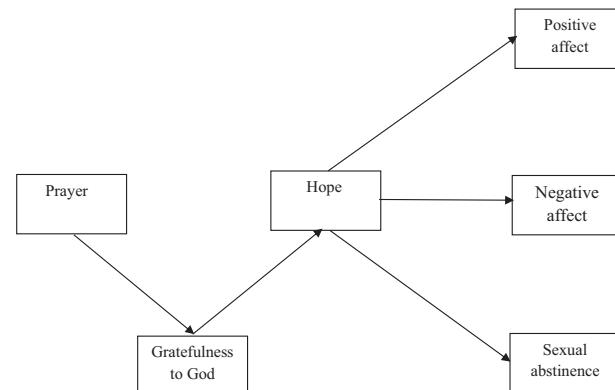
**Hope.** Hope was verified using the Polish version (Wnuk & Marcinkowski, 2014) of the Hope Herth Index (HHI; Herth, 1992). This psychometrically sound tool consists of 12 questions. The HHI items are scored on a 4-point Likert scale (from 1 = “strongly disagree” to 5 = “strongly agree”). The reliability of this scale was measured by Cronbach’s alpha coefficient, but it was found to differ depending on the sample, with a range from 0.74 to 0.91 (Wnuk & Marcinkowski, 2014; Herth, 1992).

**Sexual abstinence.** Duration of sexual abstinence was measured with a single question: “How long have you maintained abstinence from sex (understood in accordance with SA principles) (in months)?” A self-reported single item is a common method for measuring the duration of abstinence among people with addictions (Wnuk, 2022c).

**Procedure.** The study took place between February 2020 and January 2021 in Poland. With respect to the inclusion criteria, participants had to be at least 18 years old and involved in SA meetings in Poland. Participants were informed about the research purpose, anonymous and voluntary attendance, the approximate time of the survey, and the possibility of withdrawing from the study at any time without any consequences. All participants agreed to participate in the study. Participants were not incentivized for their involvement in the research.

**Statistical analysis and conceptual model.** In the preliminary analysis, Harman’s single-factor method for confirmatory factor analysis was applied to test for common method bias (Podsakoff et al., 2003), and the variance inflation factor (VIF) of the variables was calculated to exclude potential multicollinearity (Akinwande et al., 2015). Furthermore, a power analysis was applied to examine the adequacy of the sample size. In the last step, descriptive statistics, reliability coefficients, and zero-order correlations between the study variables were computed.

Path analysis within structural equation modeling was used to verify the appropriateness of the research model. Indirect effects were examined through bootstrapping with 5,000 subsamples and a 95% bias-corrected confidence interval (Hayes, 2013). Age was the only control variable. The following indicators of model fit were applied: for model  $\chi^2$ , the minimum discrepancy/degrees of freedom ( $\chi^2/df$ ), goodness of fit index (GFI), comparative fit index (CFI), normalized fit index (NFI), root mean square error of approximation (RMSEA), and standardized root mean of squared residual (SRMR). Due to the relatively small sample size, the Bollen–Stine (1992) bootstrapping method was applied to increase the likelihood of the veracity of the obtained results.



**Fig. 1** Conceptual model.

The conceptual model (see Fig. 1) assumed an indirect mechanism between prayer and recovery indicators through the pathways of gratitude to God/higher power and hope. It was expected that prayer would be positively related to gratitude to God/higher power, which in turn would be correlated with hope as a predictor of recovery.

Two different recovery indicators were employed, sexual abstinence and emotional well-being, which were measured by positive and negative affect. Emotional well-being was measured as an affective manifestation of subjective well-being (Diener, 1984). This choice of dependent variables was caused by the fact that, according to expectations, sexual abstinence can be unrelated or at most weakly linked to emotional well-being. According to the SA literature, sexual abstinence by itself is a necessary, but not a sufficient, factor for sobriety, which is understood as leading a fulfilling and satisfying life (SA, 1989), connected with emotional well-being (Helm, 2019).

## Results

**Preliminary analysis.** The Kaiser–Meyer–Olkin statistic was 0.706 ( $\chi^2 = 1105.56$ ;  $df = 325$ ;  $p < 0.001$ ), which was higher than the minimum acceptance level of 0.6 (MacCallum et al., 1999), thus confirming the sample adequacy. The not-rotated one-factor solution explained the 26.15% variance (acceptable threshold of 40%; Podsakoff et al., 2003). This was also confirmation of the lack of a common method bias problem. The power analysis indicated an adequate sample size. At a power of 0.9, a medium-sized effect of 0.15, and an alpha of 0.05, the sample size result was 62.

The descriptive statistics are presented in Table 1.

The lack of VIF values of predictors exceeding 5 led to the conclusion that there was no multicollinearity in the data. According to Brown (2006) recommendation, the variable results of skewness were found to be between  $-3$  and  $3$ , which was the same as the kurtoses from  $-10$  to  $10$ , indicating a lack of significant problems with normal distribution. In Table 2, the values of the r-Pearson correlations are presented.

Positive affect was positively correlated with hope and gratitude to God/higher power and unrelated to negative affect, sexual abstinence, prayer, and age. Negative affect was negatively related to hope and prayer. Hope was positively correlated with sexual abstinence, gratitude to God/higher power, and prayer. Also, gratitude to God/higher power and prayer were positively linked, as were sexual abstinence and age, and sexual abstinence and gratitude to God/higher power.

In the verified model, aside from the paths reflecting the research hypotheses, alternative direct paths from prayer to hope, prayer to positive and negative affect, and prayer to sexual abstinence were tested. The same patterns of paths were used in

**Table 1 Descriptives statistics in a sample of Sexaholics Anonymous (N = 80).**

Variable	Minimum	Maximum	Mean	Standard deviation	Skewness	Kurtosis	VIM	Alpha Cronbach coefficient
Positive affect	5	25	15.87	4.23	-0.2	-0.46	-	0.86
Negative affect	5	25	16.15	4.48	-0.1	-0.52	-	0.87
Hope	26	48	36.92	4.77	-0.05	-0.48	1.26	0.84
Sexual abstinence	0	116	20.95	28.64	1.6	1.74	-	-
Gratitude to God	1	7	6.18	1.36	-1.93	3.5	1.68	-
Frequency of prayer	1	7	7.31	1.36	-2.76	8.26	1.67	-
Age	22	68	38.96	10.56	0.39	-0.37	1.09	-

VIM variance inflation factor.

**Table 2 Values of r-Pearson correlation coefficients between research variables (N = 80).**

1. Positive affect	1	2	3	4	5	6
2. Negative affect	0.04					
3. Hope	0.57**	-0.22*				
4. Sexual abstinence	0.20	-0.12	0.26**			
5. Gratitude to God	0.35**	0.17	42**	0.25*		
6. Frequency of prayer	0.21	-0.24*	0.37**	0.13	0.57**	
7. Age	-0.20	-0.04	-0.04	0.24**	0.03	0.21

\*p &lt; 0.05, \*\*p &lt; 0.01.

**Table 4 Results of standardized direct effects for 95% interval (N = 80).**

Pathway	Value of effect	p	LLCI	ULCI
Prayer—gratitude to God	0.575	0.008	0.171	0.775
Prayer—hope	0.192	0.127	-0.078	0.408
Prayer—sexual abstinence	0.022	0.915	-0.178	0.212
Prayer—positive affect	-0.012	0.968	-0.334	0.182
Prayer—negative affect	-0.054	0.647	0.250	0.737
Gratitude to God—hope	0.315	0.019	0.055	0.587
Gratitude to God—sexual abstinence	0.147	0.155	-0.061	0.340
Gratitude to God—positive affect	-0.077	0.505	-0.277	0.503
Gratitude to God—negative affect	-0.286	0.020	-0.526	-0.057
Hope—sexual abstinence	0.204	0.032	0.020	0.369
Hope—positive affect	0.603	0.000	0.425	0.766
Hope—negative affect	-0.081	0.652	-0.329	0.229

LLCI = 95% confidence interval (low); ULCI = 95% confidence interval (high).

**Table 3 Results of standardized total effects for 95% interval (N = 80).**

Pathway	Value of effect	p	LLCI	ULCI
Prayer—gratitude to God	0.575	0.008	0.171	0.775
Prayer—hope	0.373	0.001	0.200	0.513
Prayer—sexual abstinence	0.183	0.096	-0.042	0.350
Prayer—positive affect	0.169	0.094	-0.027	0.327
Prayer—negative affect	-0.249	0.076	-0.469	0.036
Gratitude to God—hope	0.315	0.019	0.055	0.587
Gratitude to God—sexual abstinence	0.211	0.039	0.011	0.417
Gratitude to God—positive affect	0.113	0.424	-0.157	0.417
Gratitude to God—negative affect	-0.312	0.011	-0.549	-0.081
Hope—sexual abstinence	0.204	0.032	0.020	0.369
Hope—positive affect	0.603	0.000	0.425	0.766
Hope—negative affect	-0.081	0.652	-0.329	0.229

LLCI = 95% confidence interval (low); ULCI = 95% confidence interval (high).

reference to gratitude to God/higher power and the interaction between gratitude to God/higher power and prayer.

The research model was well fitted to the data ( $\chi^2[3] = 1.74$ ;  $p = 0.626$ ; CMIN/df = 0.58; CFI = 1; NFI = 0.98; GFI = 0.99; RMSEA = 0.000 (90% CI (0.000, 0.120)); SRMR = 0.019). The results of the standardized total, direct, and indirect effects are presented in Tables 3–5.

In comparison to the conceptual model, one additional direct path was statistically significant between gratitude to God/higher power and negative affect, and one was not relevant between hope and negative affect (see Fig. 2).

The findings reveal that prayer predicted gratitude to God/higher power, but not hope, sexual abstinence, or positive or negative affect. Via gratitude to God/higher power, prayer was indirectly negatively related to negative affect, and through the path of gratitude to God/higher power and hope was positively related to abstinence duration and positive affect. Gratitude to God/higher power was negatively directly related to negative affect and indirectly linked to positive affect and sexual abstinence via hope. Hope was directly related to positive affect and sexual abstinence, but not to negative affect.

## Discussion

This study aimed to verify the mechanisms underpinning the relationship between prayer, emotional well-being, and the abstinence duration of OCSB patients participating in mutual-aid groups in Poland.

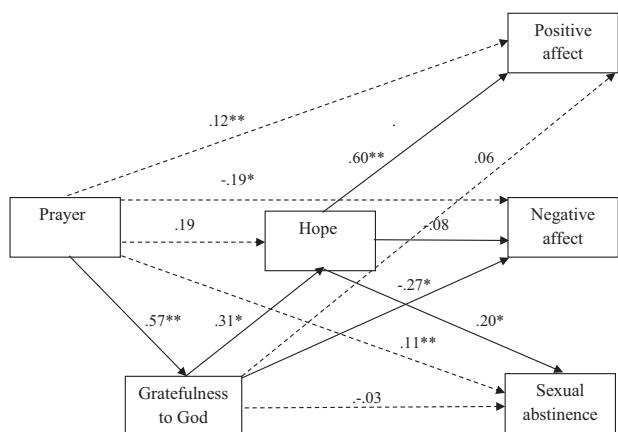
The beneficial function of prayer to emotional well-being and maintaining the sexual abstinence of OCSB individuals attending mutual self-help groups was confirmed. Besides positive direct effects, indirect mechanisms underlying the links between prayer and affectivity and sexual abstinence were positively verified.

The role of prayer as a potential way to improve emotional regulation was found. The obtained results correspond with Schnitker and Richardson (2019), who confirmed the prayer-based intervention's beneficial influence on reducing negative affect and increasing positive affect. As shown, prayer can be a good practice for preventing negative emotions directly and

**Table 5 Results of standardized indirect effects for 95% interval (N = 80).**

Pathway	Value of effect	p	LLCI	ULCI
Prayer—gratitude to God—hope	0.181	0.013	0.029	0.472
Prayer—gratitude to God—hope—sexual abstinence	0.116	0.008	0.044	0.346
Prayer—gratitude to God—hope—positive affect	0.118	0.026	0.024	0.345
Prayer—gratitude to God—negative affect	-0.195	0.012	-0.422	-0.036
Gratitude to God—hope—sexual abstinence	0.064	0.026	0.007	0.183
Gratitude to God—hope—positive affect	0.190	0.016	0.034	0.378
Gratitude to God—hope—negative affect	-0.026	0.419	-0.141	0.059

LLCI = 95% confidence interval (low); ULCI = 95% confidence interval (high).



**Fig. 2 Path analysis results.** The standardized regression coefficients are presented. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . The standardized indirect effects were signed by the dotted line. For the sake of legibility, the correlations between the residuals were omitted in Figure 2. The model was controlled for age.

indirectly through gratitude to God/higher power. It is crucial because, in OCSB patients, negative emotionality manifested in guilt, shame, and feelings of hopelessness (Gilliland et al., 2011; Privara & Bob, 2023) is a trigger for involvement in sexual activity as a learned way of coping. From this perspective, prayer may be considered a resource helpful to developing skills that are the antecedent of symptoms of obsessive-compulsive sexual behaviors like emotional regulation (Benfield, 2018; Coleman et al., 2018; Giugliano, 2006; Grubbs et al., 2015; Hall, 2011), and effective coping (Coleman et al., 2018; Giugliano, 2006; Grubbs et al., 2015; Hall, 2011). It means that in struggling with threatening and difficult negative emotions instead of binge sexual behaviors like pornography, masturbation, and others, they have a chance to effectively cope thanks to prayer and thankfulness to God/higher power for every gift, prosperity, blessing, and opportunity to build a trustful, hopeful, and safe bond with God/higher power.

On the other hand, gratefulness to God/higher power requires hope as a factor necessary for the possibility of increasing positive emotionality and abstinence from sexual behaviors. According to Fredrickson's (2013) broadening and building theory of positive emotions, gratitude and hope can be considered as positive emotions for creating more adaptive schemes and building a range of personal resources that augment the chances for the appearance of positive affect and behaviors.

Research findings indicate prayer as a suitable method that can be used to potentiate positive emotions and maintain sexual abstinence both directly and indirectly through the installation of hope. Consistent with a previous study of Poles diagnosed with OCSB (Wnuk, 2017), prayer was indirectly connected to hope

through a positive reference to God/higher power. It implies that the process of communication with God/higher power during the prayer requires an appreciative attitude toward God/higher power to instill hope. In turn, hope predicted positive affectivity and sexual abstinence, which corresponds with an earlier study indicating hope as a predictor of positive well-being indicators (Wnuk & Hędzelek, 2008).

The indirect mechanism of the relationship between prayer and sexual abstinence, through gratitude to God/higher power and hope, can be explained based on the approach to hope presented by Bernardo (2010). Following this author among SA participants, the perception of God as an external agent is a supportive factor for the maintenance of motivation and persistence in goal-directed actions focused on achieving sobriety and sustaining sexual abstinence. Also, Frank's (2009) tragic optimism and Marcel's (1953) approach to hope can serve as an appropriate interpretative framework for this mechanism. OCSB patients often find themselves in very painful and stressful circumstances and use prayer to obtain hope through gratitude to God/higher power and effectively cope with hopelessness, emptiness, and meaninglessness, and thus transform this experience into something purposeful and meaningful. Thanks to this process, they became capable of achieving sexual abstinence.

Some practical implications are derived from this research. First of all, prayer, being a way to build a secure bond with God/higher power, should be implemented as a part of therapeutic programs and methods in the recovery process of Polish patients diagnosed with OCSB. Prayer and meditation are important elements of the 12-step Program. In SA participants, involvement in this form of support indirectly predicted life satisfaction and negative affect (Wnuk et al., 2024). Also, recent research confirmed the beneficial function of intervention based on prayer for depression, anxiety, optimism, and spiritual experience (Boelens et al., 2012), forgiveness (Vasiliauskas, McMinn, 2013), attachment to God (Monroe & Jankowski, 2016), positive affect (Monroe & Jankowski, 2016; Schnitker & Richardson, 2019), hope (Schnitker & Richardson, 2019), gratitude (Lambert et al., 2009; Olson et al., 2019; Schnitker & Richardson, 2019) and psychological distress (Monroe & Jankowski, 2016). Furthermore, psychiatrists, psychologists, psychotherapists, and social workers, within their supportive actions, should inform and recommend prayer practice as a potential method of improving well-being and maintaining sexual abstinence.

Additionally, therapeutic intervention focuses on instilling gratefulness to God/higher power and is recommended as a potentially useful method for enhancing well-being (Lambert Vel-dorale-Brogan, 2013). Oishi & Cha (2024) showed that gratitude to God was related to successful abstinence during Lent. The above outcomes are positive premises to use gratitude to God focused intervention as a potential way to maintain sexual abstinence.

Also, a hope-centered therapeutic approach should be applied to this group of patients to facilitate recovery and enhance well-

being. The results of recent studies regarding this issue are promising, indicating that hope-focused therapy is an effective way of reducing depressive symptoms (Rahimi et al., 2021; Retnowati et al., 2015) and leads to positive outcomes in substance abusers (Koehn et al., 2012).

**Limitations and future research.** This study's results have limited generalizability to individuals from Poland diagnosed with OCSB participating in mutual-aid groups, most of whom were men with Roman Catholic religious affiliation. Taking into account that the Polish nation is very religiously inclined and homogeneous in reference to a religious denomination, it would be interesting to conduct research on a sample of OCSB patients in a cultural background with more religious diversity and less involvement in religious practices. In addition, studies on other substance- and behavior-dependent individuals could lead to interesting results, especially since many participants declared problems with other obsessive-compulsive behaviors. In future studies, it may be possible to verify whether the identified mechanisms have a universal character and are independent from the form of dependence and cultural and religious influences. Additionally, a comparison between participation in mutual-aid groups and other forms of treatment of OCSB patients (Efrati & Gola, 2018) could show the efficiency and specificity of this type of recovery support, as well as reveal whether prayer is also frequently used by religiously inclined individuals who are not motivated to engage in this spiritual practice by the 12-step program. Furthermore, in future research, it is necessary to employ different forms of prayer, not only the frequency of this spiritual practice. This is important due to the fact that different types of prayer lead to other results, some of which are beneficial and others of which are detrimental (Whittington & Scher, 2010). These results would serve as the basis for further recommendations for OCSB patients regarding the appropriate types of prayer and meditation that are connected with positive outcomes.

The sample of the present study was relatively small, which made it impossible to examine potential moderators, such as, for example, sex as a factor that differentiates the recovery process of alcohol-dependent individuals who attend AA (Krentzman et al., 2012). Sex could also moderate the relationship between religiosity and well-being. For example, in Wnuk et al. (2022) study of a sample of multiple sclerosis patients, religiosity was a predictor of happiness among women, but not in men.

The cross-sectional design of this study also limits the possibility of conclusions regarding the cause-and-effect relationships between the research variables. Only a longitudinal study could unambiguously confirm that prayer leads to gratitude to God/higher power and hope, and that hope in turn is a source of sexual abstinence and emotional well-being. Experimental research among OCSB patients focused on improving prayer, gratitude, and hope could be an opportunity to confirm the efficacy of this kind of intervention for sexual abstinence and the well-being and mental health of representatives of this group. Finally, future research should take into account the different targets of gratitude by considering not only gratitude to God/higher power or general gratitude, but also gratitude toward one's parents, spouse (Charzyńska et al., 2020), SA fellowship, sponsor, or sponsoree.

## Data availability

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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## Author contributions

Conceptualization, MW; methodology, MW; formal analysis, MW; investigation, MW; resources, MW; data curation, MW; writing—original draft preparation, MW, writing—review and editing, MW, visualization, MW, supervision, MW, project administration, MW, funding acquisition, MW.

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## Competing interests

The author declares no competing interests.

## Ethics approval

The research procedures were carried out in accordance with the Declaration of Helsinki. The ethical approval for the study protocol was given by the Research Ethics Committee at the University of Silesia in Katowice (KEUS 123/05.2021) on May 29, 2021.

## Informed consent

Study participants expressed voluntary and conscious agreement to participate in the study during the filling of the questionnaire between 1 June and September 30, 2021, in written form by marking the statement that the consent included participation in the study and publication of the results.

## Additional information

Correspondence and requests for materials should be addressed to Marcin Wnuk.

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