



Religiosity and Time Perspective: Associations with Psychological Wellbeing

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April 2019

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ABSTRACT

This study aimed to investigate the additive contribution of time perspective to the link between religiosity and psychological wellbeing. Previous research examined religiosity and time perspective from a subjective wellbeing perspective but failed to address these factors in regard to psychological wellbeing; the current study addressed this. A sample of 120 participants (39 males, 81 females) completed three questionnaires: Religious Orientation Scale-Revised, Zimbardo's Time Perspective Inventory, and Psychological Well-being Scale. Hierarchical multiple regressions were conducted, revealing intrinsic religiosity, future time perspective and past-positive time perspective as significant positive predictors of psychological wellbeing. Extrinsic religiosity and past-negative time perspective were significant negative predictors of psychological wellbeing. These findings agreed with the study's hypotheses and with previous research. Interestingly, with time perspective added to the regression model at stage 2, intrinsic and extrinsic religiosity became no longer significant predictors of psychological wellbeing. The implications, limitations, directions for future research were discussed and potential underlying mechanisms were explained.

KEYWORDS:	PSYCHOLOGICAL WELLBEING	SUBJECTIVE WELLBEING	INTRINSIC RELIGIOSITY	EXTRINSIC RELIGIOSITY	TIME PERSPECTIVE
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Introduction

Historically, psychological wellbeing (PWB) has been largely understood as merely the absence of mental disorder. With the emergence of positive psychology, this view has been extensively challenged and debated (Ryff, 1995; Seligman and Csikszentmihalyi, 2000). PWB falls within the eudemonic tradition; it is concerned with meaning in life and the fulfilment of human potential or self-realisation (Ryan and Deci, 2001). Arguably, this is greatly different from subjective wellbeing (SWB), which is based on the hedonic tradition and is more concerned with happiness, life satisfaction (Cheng et al., 2013), maximising pleasure and minimising pain (Fernandes et al., 2010).

The study of PWB brings a necessary advance from the preceding focus of SWB which has been extensively researched (Drake et al., 2008; Desmyter and De-Raedt, 2012). This is potentially important because SWB fails to capture the core meaning of wellness; it does not provide a satisfactory understanding of meaning in life nor how to facilitate meaningfulness (Fernandes et al., 2010). Ryff (1989) developed a model which complements the eudemonic approach; conceptualising PWB. This contains six distinct facets: purpose in life (strive for meaningfulness), personal growth (opportunity to develop), autonomy (sense of self-directedness), environmental mastery (sense of control over situations), self-acceptance (accepting the self, despite awareness of personal limitations) and positive relations (establishing warm trusting relationships with others) (Ryff, 2014). With this model, PWB is useful for extending beyond happiness and life satisfaction (Ryff and Singer, 2008; Gao and McLellan, 2018). Thus, exploring how PWB is linked with religiosity and time perspective will be interesting and new.

Religiosity

One important predictor of PWB is religiosity. Religiosity refers to religious beliefs, rituals and sacred practices (Zullig et al., 2006). It has been strongly argued that religiosity is a powerful source of existential meaning, which forms a significant construct in the promotion of wellness (Aflakseir, 2012). Studies have consistently reported that religiosity is positively associated with greater PWB, improved mental health and greater life meaning (Green and Elliot, 2009; Shiah et al., 2015; Ivtzan et al., 2013; Wnuk and Marcinkowski, 2014). However, although there is compelling support from studies to suggest that religiosity is beneficial and is predictive of greater PWB, caution still needs to be exercised as this account is not universally accepted. Several studies have proposed an alternative argument, suggesting that religiosity exacerbates rather than benefits PWB (Exline et al., 2000; Meanley et al., 2016). This line of argument asserts that religiosity reduces meaningfulness and PWB by promoting unhealthy thinking regarding sinfulness, heaven and hell (Liu et al., 2011). Furthermore, it is important to be mindful that studies supporting the association between religiosity and PWB have been criticised for lacking psychometric rigor, due to failing to adequately assess religiosity (Salsman and Carlson, 2005). Academic researchers agree that religiosity is a multidimensional measure (Ismail and Desmukh, 2012; McClintock et al., 2016), yet many studies investigating religiosity have relied on single measures (Exline, 2002; Wnuk and Marcinkowski, 2014). Thus, conflicting views in literature might be attributable to the multifaceted nature of religiosity. Because of this, specific facets of religiosity were selected for this study.

The two facets of religiosity are intrinsic and extrinsic (Allport and Ross, 1967). Intrinsic religiosity is defined as living religious beliefs and internalising these beliefs into every aspect of life (Cohen and Johnson, 2017). Extrinsic religiosity implies that religion is used as a tool to attain external benefits such as comfort, security and sociable desirability; it is purely utilitarian (Doane et al., 2014). Saleem and Saleem (2017) found that intrinsic religiosity predicted greater PWB. It has been suggested that intrinsic religiosity orientates a person to becoming meaningful by providing a sense of who they are and by unifying the philosophy of life (Steger and Frazier, 2005; Park and Yoo, 2016). This helps to make life more understandable and interpretable which promotes PWB (Ismail and Desmukh, 2012; Aflakseir, 2012). Furthermore, intrinsic religiosity promotes PWB by forming a meaningful and spiritual connection with God, promoting a sense of personal significance (Darvyri et al., 2014). Maltby et al. (1999) found that participating in intrinsic practices such as personal prayer and reciting holy books, helps place people's hearts at peace, which promoted PWB. It has been suggested that these practices promote positive cognitions and optimism which in turn enhances PWB (Joshi et al., 2008).

In contrast to intrinsic religiosity, extrinsic religiosity is criticised as a negative manifestation of an underlying cause of poorer PWB. Evidence supporting this line of argument comes from Alandete and Valero (2013) and Maltby et al. (1999) who reported that PWB was positively related to intrinsic religiosity and negatively related to extrinsic religiosity. Doane et al. (2014) found that orienting the self towards religiosity with extrinsic goals is detrimental to PWB due to perceiving religiosity as a means to an end and thus not endorsing authentically in religious beliefs. This reduces meaning in life (Auhagen, 2000).

However, conflicting research has been found. The negative relationship between extrinsic religiosity and PWB was not evident in the context of religious coping. Yoon and Lee (2007) reported that regular attendance of religious services was rewarding in terms of relieving tension and increasing social support which in turn promoted PWB. This suggests that religiosity can act as a potential coping mechanism to enhance meaning in life (Krok, 2015), providing a protective buffer against reduced PWB (Barton et al., 2013). The main argument of this viewpoint suggests that religiosity provides social and psychological resources which are beneficial for maintaining PWB (Shiah et al., 2015). These resources gained through religious engagement, help to increase mental stability, positivity and endurance, which in turn enhances PWB.

Time Perspective

Another concept investigated in this study is time perspective. Extending from the life space model (Lewin, 1951), the time perspective model was developed (Zimbardo and Boyd, 1999). Time perspective refers to cognitively assigning world experiences into the past, present and future (Sobol-Kwapinska et al., 2019). According to Zimbardo and Boyd (1999) time perspective comprises of the following: past-negative (negative focus on past) past-positive (sentimental focus on past), future (reflects aims and ambitions) present-hedonistic (focusing on gratification and thrill at all costs) and present-fatalistic (passive, having no sense of control over time).

The association between the five-time perspectives and PWB is lacking in literature, with most research focusing on SWB (Drake et al., 2008; Desmyter and De-Raedt, 2012). Fortunately, there has been some research. Interestingly, Sailer et al. (2014)

documented that, future perspective, present-hedonistic perspective and past-positive perspective were predictive of higher PWB, whereas present-fatalistic perspective, and past-negative perspective were predictive of lower PWB. Shterjovska and Achkovska-Leshkovska (2014) argued that time perspective reflects an important construct for meaning, providing individuals with a framework for living. Shterjovska and Achkovska-Leshkovska (2014) found that past-positive perspective and future perspective were strongly connected to meaning in life. The study argued that pleasant memories and motivation for future success provided potential resources for meaningfulness.

Another study by Pethtel et al. (2018) reported that present-fatalistic perspective and past-negative perspective were related negatively to PWB. However, this study was subjected to critical evaluations due to containing methodological issues. A notable criticism of this study is that the external validity was highly questionable. The sample in Pethtel's et al. (2018) study mostly consisted of adults with low family income. This is problematic because low-income populations might be more vulnerable to lower PWB (Kaplan et al., 2008). This suggests that Pethtel's et al. (2018) results should be interpreted with caution.

Within existing literature, there is little research focusing explicitly on religiosity and time perspective. According to available research, religiosity is linked with evaluations of life and perceptions towards the future (Öner-Özkan, 2007). Religious beliefs can influence the assignment of meaning to the past, present and future (Przepiorka and Sobol-Kwapinska, 2018). Mohammadi et al. (2018) asserted that intrinsic religiosity is closely linked with past-positive perspective and future perspective. This might be because having a meaningful connection with God can promote positive cognitions (Joshi et al., 2008), allowing intrinsically religious individuals to hold a positive cognitive perception towards the past and future (Cappellen et al., 2016). With this positive and future-oriented outlook, individuals can internalise their religious beliefs to construct meaningful goals (Emmons, 2005) and potentially strive towards self-actualisation (Ivtzan et al., 2013).

It has been argued that extrinsic religious individuals are hedonists because they use religion for utilitarian benefits (Neyrinck et al., 2010), aligning well with present-hedonistic perspective, as this time perspective is concerned with attaining pleasure at all costs (Mohammadi et al. 2018). In general, previous research have suggested that extrinsic religiosity is related to lower PWB (Alandete and Valero, 2013; Doane et al., 2014). Therefore, it is sensible to expect for present-hedonistic perspective to also exhibit a similar relationship with PWB. Mohammadi et al. (2018) reported positive correlations between extrinsic religiosity, present-hedonistic perspective, present-fatalistic perspective and past-negative perspective. However, although religiosity and time perspective have been previously investigated, these variables have not been investigated in relation to PWB. This signifies the relevance of investigating time perspective, religiosity and PWB collectively.

Rationale

Investigations of time perspective and religiosity in relation to PWB have received little attention in literature. Examining these variables collectively might benefit literature by uncovering and enhancing knowledge on potential underlying mechanisms. These mechanisms can further improve and deepen understanding in terms of how religiosity and time perspective can potentially impact PWB. Such understanding could benefit

the field of positive and clinical psychology as this research might offer important implications (Park and Yoo, 2016). Literature can also benefit from this research by clarifying the debate between religiosity and PWB.

Aims

This study aims to investigate the additive contribution of time perspective to the link between religiosity and PWB. Based on careful reviews of previous literature, the following hypotheses or study expectations were constructed:

Hypothesis-1: Intrinsic religiosity will positively predict PWB and extrinsic religiosity will negatively predict PWB.

Hypothesis-2: Past-positive and future time perspectives will positively predict PWB.

Hypothesis-3: Past-negative, present-hedonistic and present-fatalistic time perspectives will negatively predict PWB.

Methodology

Design

A non-experimental correlational design was implemented. The study conducted hierarchical multiple regressions and had seven predictor variables. These were: intrinsic religiosity, extrinsic religiosity, past-negative, past-positive, future, present-hedonistic and present-fatalistic time perspectives. The criterion variable was psychological wellbeing (PWB), which consisted of six dimensions: personal growth, environmental mastery, self-acceptance, purpose in life, autonomy and positive relations.

Participants

An opportunity sample of 120 participants, consisting of 39 males, 81 females aged between 19-25 years (Mean= 20.82, SD= 1.41) participated in this study. Participants were gathered using a university's Research Participation Pool and an invitation letter (Appendix 7) inviting participants meeting the research criteria to participate. Only participants who possess a religious faith and were at least 18 years of age participated. The use of opportunity sampling was advantageous, as it allowed large amounts of data to be easily collected, while conveniently targeting participants who fit the research criteria and were readily available and willing to participate (Coolican, 2014). Using the formula $N > 50 + 8m$ (m indicating number of predictors), it has become clear that a minimum of 106 participants were required (Green, 1991) which was exceeded.

Materials

Three well-established scales were used. These scales were compiled to form a 112-item questionnaire (Appendix 8). As the scales were extensively used in the academic and public domain, permission was not required for their usage.

Measures

Psychological Well-Being Scale

PWB was assessed using the Psychological Well-Being Scale (Ryff, 1989) which consisted of 42 items, assessing six dimensions: environmental mastery, self-

acceptance, personal growth, autonomy, positive relations and purpose in life. A six-point Likert scale was used ranging from 1-6 ('strongly disagree-strongly agree'). Each dimension was composed of 7 items (autonomy, 'I tend to be influenced by people with strong opinions'; environmental mastery, 'in general, I am in charge of situations in which I live in'; personal growth, 'I am not interested in activities that will expand my horizons', positive relations; 'most people see me as loving and affectionate'; purpose in life, 'I have a sense of direction and purpose in life' and self-acceptance, 'I like most aspects of my personality'). Items 3, 5,10, 13, 14,15,16,17, 18, 19, 23, 26, 27,30,31, 32, 34, 36, 39 and 41 were reverse scored. Previous research reported satisfactory reliability for environmental mastery (.77), autonomy (.76), positive relations (.82), personal growth (.78) self-acceptance (.84) and purpose in life (.72) (Pethtel et al., 2018). Henn et al. (2016) also supported the reliability of the scale ranging from .86 to .93. Higher scores for each subscale corresponded to higher levels of PWB.

Religious Orientation Scale-Revised

Intrinsic and extrinsic religiosity were assessed using the Religious Orientation Scale-Revised (Gorsuch and McPherson, 1989), which is a revised version of the Religious Orientation Scale (Allport and Ross, 1967). The questionnaire consisted of 14 items. A five-point Likert scale ranging from 1 ('strongly disagree') to 5 ('strongly agree') was used. Intrinsic subscale consisted of 8 items; three items were reverse scored (3, 10 and 14). An example item of intrinsic subscale was 'I enjoy reading about my religion.' Extrinsic subscale consisted of 6 items, assessing two components: extrinsic-social (3 items, 'I go to church mostly to spend time with friends') and extrinsic-personal (3 items, 'I pray mainly to gain relief and protection'). Satisfactory internal consistency reliabilities were reported for intrinsic religiosity (.82), extrinsic-personal (.84) and extrinsic-social (.79) (Isaak et al., 2017). Higher scores indicated higher levels of religiosity.

Zimbardo's Time Perspective Inventory

The five-time perspectives were assessed using Zimbardo's Time Perspective Inventory (Zimbardo and Boyd, 1999), which consisted of 56 items. A five-point Likert scale ranging from 1 ('very untrue of me') to 5 ('very true of me') was utilised. Past-negative subscale contained 10 items, (for example, 'painful past experiences keep being replayed in my mind'). Past-positive subscale contained 9 items (for example, 'it gives me pleasure to think about my past'). Present-hedonistic subscale contained 15 items (for example, 'I take risks to put excitement in my life'). Present-fatalistic subscale contained 9 items, (for example 'fate determines much in my life'). Future subscale contained 13 items (for example, 'I make lists of things to do'). Literature reported satisfactory internal reliability for past-negative (.82), past-positive (.80) future (.77) present-fatalistic (.74) and present-hedonistic (.79) (Mooney et al., 2017). Items 9, 24,41 and 56 were reverse scored. Higher scores indicated higher levels of a specific time perspective (Przepiorka et al., 2016).

Procedure

After ethical approval was granted, all questionnaires were inputted into Qualtrics along with the participant information sheet (Appendix 4), consent form (Appendix 5) and debrief sheet (Appendix 6). The Qualtrics link was then uploaded onto the Research Participation Pool. Clicking on the Qualtrics link brought participants to the participant information sheet which they were required to read. Only after clicking, 'I understand and consent to take part' were they allowed to proceed. After, agreeing to

take part, participants completed demographic questions asking for age, gender and religion. This was then followed by a 112-item questionnaire (Appendix 8). Following this, participants were debriefed and were given the opportunity to create a unique anonymous code. To obtain more participants, an invitation letter containing the Qualtrics link was sent to participants via social media inviting them to take part in the research.

Ethical considerations

This study was granted ethical approval and was consistent with ethical guidelines outlined by British Psychological Society (See Appendix 1 for full ethics form). The aims of this study were outlined in the participant information sheet; thus, participants were not deceived. Prior participation, participants were asked for consent. Anonymity was maintained, as participants created a unique anonymous code. Data were kept strictly confidential with the access of only the lead researcher and research supervisor and were safely stored on a password-protected computer. The right to withdraw was made clear. Participants could withdraw their data up to four weeks after taking part, by emailing the researcher. The risk of potential harm was low; however, as a precaution, participants were provided with support services (counselling) which was discussed during the debrief.

Analysis Plan

Following internal reliability analysis, Pearson correlations were calculated to observe the strength of correlation between each predictor variable and psychological wellbeing dimension; this ranged between -1.00 and +1.00. The correlation between each predictor and criterion variables were presented using a correlation matrix. To investigate the additive contribution of time perspective to the link between religiosity and PWB, hierarchical multiple regressions using the enter method were deemed a suitable method for data analysis. Prior to performing analysis, key regression assumptions including: outliers, multicollinearity, independent errors, homoscedasticity and linearity were tested (Tabachnick and Fidell, 2013). The results of the hierarchical multiple regressions were deemed satisfactory. In this analysis, predictor variables were entered sequentially (Petrocelli, 2003).

Results

Statistical calculations were performed using SPSS-25. Before conducting analyses, relevant questionnaire items were reverse scored; this was consistent with author instructions. Total scores were then calculated.

Reliability Analysis

Following internal consistency analysis, Cronbach's alpha indicated satisfactory reliability for intrinsic religiosity ($\alpha = .93$) and extrinsic religiosity ($\alpha = .79$). The time perspectives: past-negative ($\alpha = .94$), future ($\alpha = .87$), present-hedonistic ($\alpha = .78$) present-fatalistic ($\alpha = .92$) also demonstrated satisfactory reliability. However, past-positive time perspective ($\alpha = .46$) had a concerningly low reliability (Nunnally, 1978). Autonomy ($\alpha = .86$), personal growth ($\alpha = .82$), purpose in life ($\alpha = .89$), self-acceptance ($\alpha = .70$) environmental mastery ($\alpha = .70$) and positive relations ($\alpha = .84$) demonstrated satisfactory internal consistency reliability.

Descriptive statistics

Means, standard deviations (SD) and Pearson correlation coefficients were computed for each variable. These can be viewed at table 1.

Table 1

Means, standard deviations (SD) and correlations among the study variables

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Intrinsic Religiosity	30.12	8.45													
2 Extrinsic Religiosity	18.11	5.34	-.37**												
3 Past-Negative	26.60	10.27	-.52**	.45**											
4 Past-Positive	31.85	4.19	.48**	-.17*	-.44**										
5 Future	48.19	8.24	.60**	-.51**	-.66**	.47**									
6 Present-Hedonistic	50.24	7.57	-.28**	.10	.15	.24**	-.19*								
7 Present-Fatalistic	22.91	8.39	-.54**	.58**	.81**	-.40**	-.78**	.21*							
8 Autonomy	29.82	6.42	.57**	-.38**	-.73**	.59**	.73**	-.26**	-.69**						
9 Environmental Mastery	28.84	5.77	.51**	-.36**	-.84**	.58**	.71**	-.05	-.74**	.81**					
10 Personal Growth	31.54	5.83	.53**	-.42**	-.77**	.55**	.75**	-.15	-.76**	.80**	.81**				
11 Positive Relations	32.36	6.10	.53**	-.33**	-.72**	.58**	.64**	-.10	-.66**	.73**	.83**	.74**			
12 Purpose in Life	31.76	7.27	.60**	-.45**	-.81**	.55**	.81**	-.20*	-.82**	.80**	.85**	.85**	.76**		
13 Self-Acceptance	29.41	5.64	.52**	-.29**	-.82**	.57**	.66**	-.11	-.68**	.80**	.89**	.78**	.84**	.84**	

Note. * indicates $p < .05$; ** indicates $p < .001$

Table 1 indicates that intrinsic religiosity was significantly positively correlated with autonomy, $r(118) = .57, p < .001$; environmental mastery, $r(118) = .51, p < .001$; personal growth $r(118) = .53, p < .001$; positive relations $r(118) = .53, p < .001$; purpose in life, $r(118) = .60, p < .001$; self-acceptance, $r(118) = .52, p < .001$; past-positive perspective, $r(118) = .48, p < .001$ and future perspective, $r(118) = .60, p < .001$. Intrinsic religiosity significantly negatively correlated with extrinsic religiosity, $r(118) = -.37, p < .001$; past-negative perspective, $r(118) = -.52, p < .001$; present-hedonistic perspective, $r(118) = -.28, p < .001$, and present-fatalistic perspective, $r(118) = -.54, p < .001$.

Extrinsic religiosity significantly negatively correlated with autonomy, $r(118) = -.38, p < .001$; environmental mastery, $r(118) = -.36, p < .001$; personal growth, $r(118) = -.42, p < .001$; positive relations, $r(118) = -.33, p < .001$; purpose in life, $r(118) = -.45, p < .001$; self-acceptance, $r(118) = -.29, p < .001$; past-positive perspective, $r(118) = -.17, p =$

.03 and future perspective, $r(118) = -.51, p < .001$. Extrinsic religiosity positively correlated with past-negative perspective, $r(118) = .45, p < .001$; present-hedonistic perspective, $r(118) = .10, p = .14$ and present-fatalistic perspective, $r(118) = .58, p < .001$.

Past-negative perspective significantly negatively correlated with autonomy, $r(118) = -.73, p < .001$; environmental mastery, $r(118) = -.84, p < .001$; personal growth, $r(118) = -.77, p < .001$; positive relations, $r(118) = -.72, p < .001$; purpose in life, $r(118) = -.81, p < .001$; self-acceptance, $r(118) = -.82, p < .001$; past-positive perspective, $r(118) = -.44, p < .001$, and future perspective, $r(118) = -.66, p < .001$. Past-negative perspective positively correlated with present-hedonistic perspective, $r(118) = .15, p = .05$ and present-fatalistic perspective, $r(118) = .81, p < .001$.

Past-positive time perspective positively correlated with autonomy, $r(118) = .59, p < .001$; environmental mastery, $r(118) = .58, p < .001$; personally growth, $r(118) = .55, p < .001$, positive relations, $r(118) = .58, p < .001$, purpose in life, $r(118) = .55, p < .001$; self-acceptance, $r(118) = .57, p < .001$; future perspective, $r(118) = .47, p < .001$ and present-hedonistic time perspective, $r(118) = .24, p = .004$. Past-positive negatively correlated with present-fatalistic perspective, $r(118) = -.40, p < .001$

Future time perspective significantly positively correlated with autonomy, $r(118) = .73, p < .001$; environmental mastery, $r(118) = .71, p < .001$; personal growth, $r(118) = .75, p < .001$; positive relations, $r(118) = .64, p < .001$; purpose in life, $r(118) = .81, p < .001$; self-acceptance, $r(118) = .66, p < .001$. Future perspective negatively correlated with present-hedonistic perspective, $r(118) = -.19, p = .02$ and present-fatalistic perspective, $r(118) = -.78, p < .001$.

Present-hedonistic perspective negatively correlated with autonomy, $r(118) = -.26, p = .002$; purpose in life, $r(118) = -.20, p = .02$ and positively correlated with present-fatalistic perspective, $r(118) = .21, p = .01$. Present-fatalistic perspective significantly negatively correlated with autonomy, $r(118) = -.69, p = .002$; environmental mastery, $r(118) = -.74, p < .001$; personal growth, $r(118) = -.76, p < .001$; positive relations, $r(118) = -.66, p < .001$; purpose in life, $r(118) = -.82, p < .001$; self-acceptance, $r(118) = -.68, p < .001$.

Regression Analysis

Six hierarchical multiple regressions were conducted, one for each PWB dimension. Intrinsic and extrinsic religiosity were entered at stage 1 as the main predictors, to observe their effects on each PWB dimension. Next, the five-time perspectives were entered at stage 2, to investigate the additive contribution of time perspective to the link between religiosity and PWB.

Prior to performing hierarchical multiple regression, relevant assumptions including: outliers, independent errors, multicollinearity, homoscedasticity and linearity were tested (Tabachnick and Fidell, 2013). Analysis of standardised residuals indicated that the data contained no outliers (Std. Residual Min= -2.99, -2.94, -2.18, -2.46, -2.24, -2.80; Std. Residual Max= 2.21, 2.65, 2.34, 2.43, 2.26, 2.22). An examination of collinearity tests revealed that the data met the assumptions of no multicollinearity (Field, 2009) (intrinsic religiosity, Tolerance= .86, VIF= 1.16; extrinsic religiosity, Tolerance= .86, VIF= 1.16; past-negative, Tolerance= .33, VIF= 3.04; past-positive, Tolerance= .53, VIF= 1.89; future, Tolerance= .33, VIF= 3.02; present-hedonistic, Tolerance= .70, VIF= 1.43; present-fatalistic, Tolerance= .22, VIF= 4.50). The

assumption of independent errors was also satisfied (Durbin-Watson=1.90, 1.67, 2.00, 1.90, 1.51, 1.75). The scatterplot of standardised residuals indicated no issues with linearity and homoscedasticity; the data met these assumptions (Hair et al., 2010) (see Appendix 3 for all SPSS output).

Table 2**Summary of the six hierarchical multiple regressions**

	Autonomy		Environmental Mastery		Personal Growth		Positive Relations		Purpose in Life		Self-Acceptance	
Step 1	$F(2,117)=$ 32.07, $p<.001$		$F(2,117)=$ 23.95, $p<.001$		$F(2,117)=$ 30.37, $p<.001$		$F(2,117)=$ 25.58, $p<.001$		$F(2,117)=$ 42.93, $p<.001$		$F(2,117)=$ 23.17, $p<.001$	
Step 2	$F(7,112)=$ 44.77, $p<.001$		$F(7,112)=$ 60.66, $p<.001$		$F(7,112)=$ 43.20, $p<.001$		$F(7,112)=$ 27.66, $p<.001$		$F(7,112)=$ 71.60, $p<.001$		$F(7,112)=$ 49.05, $p<.001$	
	β	t	β	t	β	t	β	t	β	t	β	t
Step 1												
Intrinsic Religiosity	.49**	6.18	.44**	5.21	.44**	5.39	.48**	5.73	.50**	6.64	.48**	5.72
Extrinsic Religiosity	-.20*	-2.45	-.19*	-2.31	-.26**	-3.23	-.15	-1.85	-.27**	-3.55	-.11	-1.31
Step 2												
Intrinsic Religiosity	-.05	-0.67	-.04	-0.65	-.05	-0.66	.04	0.53	.02	0.40	-.00	-0.05
Extrinsic Religiosity	.01	0.15	.10	1.81	.02	0.36	.06	0.79	.04	0.69	.14*	2.40
Past- Negative	-.36**	-4.27	-.62**	-8.17	-.35**	-4.03	-.41**	-4.11	-.33**	-4.67	-.66**	-8.13

Past- Positive	.38**	5.70	.20**	3.44	.23**	3.38	.30**	3.87	.18**	3.18	.24**	3.74
Future	.29**	3.48	.23**	3.07	.29**	3.41	.15	1.47	.32**	4.58	.20*	2.49
Present- Hedonistic	-.26**	-4.43	.03	0.51	-.08	-1.31	-.06	-0.89	-.08	-1.68	-.06	-1.02
Present- Fatalistic	.00	0.01	-.07	-0.73	-.19	-1.82	-.09	-0.73	-.22*	-2.61	.04	0.37

Note. * indicates $p < .05$; ** indicates $p < .001$

The first hierarchical multiple regression revealed that at stage 1, intrinsic religiosity significantly positively predicted autonomy whereas extrinsic religiosity significantly negatively predicted autonomy. Using the enter method, a significant model emerged in step 1 ($F(2,117) = 32.07, p < .001$). The relationship between the variables was strong ($R=.60$) and the model explained approximately 35.4% ($R^2_{adj} = 34.3\%$ $\Delta R^2=35.4\%$) of the variance in autonomy scores. At stage 2, the five-time perspectives were added; a significant model emerged ($F(7,112) = 44.77, p < .001$). The relationship between the variables was strong ($R=.86$) and the model could explain approximately 73.7% ($R^2_{adj} = 72.0\%$ $\Delta R^2= 38.3\%$). The addition of time perspective to the regression model accounted for an additional 38.3% of the variance in autonomy. Past-positive and future time perspectives significantly positively predicted autonomy, whereas, past-negative and present-hedonistic time perspectives significantly negatively predicted autonomy. Present-fatalistic time perspective was not predictive of autonomy. At stage 2, intrinsic and extrinsic religiosity became non-significant.

The second hierarchical multiple regression indicated that at step 1, intrinsic religiosity significantly positively predicted environmental mastery whereas extrinsic religiosity significantly negatively predicted environmental mastery. A significant model emerged in step 1 ($F(2,117) = 23.95, p < .001$). The relationship between variables was strong ($R=.54$) and accounted for approximately 29.0% ($R^2_{adj} = 27.8\%$ $\Delta R^2= 29.0\%$) of the variance in environmental mastery scores. At step 2 the five-time perspectives were added. A significant model emerged, ($F(7,112) = 60.66, p < .001$). The relationship between the variables was strong ($R=.89$) and the model could explain approximately 79.1% ($R^2_{adj} = 77.8\%$ $\Delta R^2= 50.1\%$) of the variance in environmental mastery. The addition of time perspective to the regression model accounted for an additional 50.1% of the variance in environmental mastery. Future and past-positive time perspectives positively predicted environmental mastery. Past-negative time perspective negatively

predicted environmental mastery. Present-hedonistic and present-fatalistic time perspectives were not predictive of environmental mastery. In step 2, Intrinsic and extrinsic religiosity became non-significant.

The third hierarchical multiple regression indicated that at stage 1, intrinsic religiosity positively predicted personal growth whereas extrinsic religiosity negatively predicted personal growth. The model was statistically significant ($F(2,117) = 30.37, p < .001$). The relationship between the variables was strong ($R=.59$) and accounted for approximately 34.2% ($R^2_{adj} = 33.0\% \Delta R^2= 34.2\%$) of the variance in personal growth. At stage 2, the five-time perspectives were added; a significant model emerged ($F(7,112) = 43.20, p < .001$). The relationship among these variables was strong ($R=.85$) and the model could explain approximately 73.0% ($R^2_{adj} = 71.3\% \Delta R^2= 38.8\%$) of the variance in personal growth scores. The addition of time perspective to the regression model accounted for an additional 38.8% of the variance in personal growth. Past-positive and future time perspectives were positive predictors of personal growth, whereas past-negative time perspective was a negative predictor of personal growth. Present-hedonistic and present-fatalistic time perspectives were not significant predictors. At stage 2, intrinsic and extrinsic religiosity became non-significant.

The fourth hierarchical multiple regression indicated that intrinsic religiosity significantly predicted positive relations. However, extrinsic religiosity did not significantly predict positive relations. The model was statistically significant ($F(2,117) = 25.58, p < .001$). The relationship between the variables was strong ($R=.55$) and accounted for approximately 30.4% ($R^2_{adj} = 29.2\% \Delta R^2=30.4\%$) of the variance in positive relations scores. At stage 2, the five-time perspectives were added; a significant model emerged ($F(7,112) = 27.66, p < .001$). The relationship among these variables was strong ($R=.80$) and the model could explain approximately 63.3% ($R^2_{adj} = 61.1\% \Delta R^2= 32.9\%$). The addition of time perspective to the regression model accounted for an additional 32.9% of the variance in positive relations. Past-positive time perspective significantly positively predicted positive relations, whereas past-negative time perspective significantly negatively predicted positive relations. Future, present-hedonistic and present-fatalistic time perspectives were not significant predictors of positive relations. At stage 2, intrinsic religiosity became non-significant.

The fifth hierarchical multiple regression indicated that intrinsic religiosity was a positive predictor and extrinsic religiosity was a negative predictor of purpose in life. The model was statistically significant ($F(2,117) = 42.93, p < .001$). The relationship between the variables was strong ($R=.65$) and accounted for approximately 42.3% ($R^2_{adj} = 41.3\% \Delta R^2=42.3\%$) of the variance in purpose in life. At stage 2, a significant model emerged $F(7,112) =71.60, p < .001$). The relationship among these variables was strong ($R=.90$) and the model could explain approximately 81.7% ($R^2_{adj} = 80.6\% \Delta R^2= 39.4\%$) of the variance in purpose in life. The addition of time perspective to the regression model accounted for an additional 39.4% of the variance in purpose in life. Past-positive and future were significant positive predictors whereas past-negative and present-fatalistic were significant negative predictors of purpose in life. However, present-hedonistic time perspective did not significantly predict purpose in life. At stage 2, intrinsic and extrinsic religiosity did not significantly predict purpose in life.

Finally, the sixth hierarchical multiple regression indicated that in step 1, intrinsic religiosity significantly positively predicted self-acceptance. The model was statistically significant ($F(2,117) = 23.17, p < .001$). Although, intrinsic religiosity had a statistically significant impact, extrinsic religiosity did not. The relationship between the variables was strong ($R=.53$) and accounted for approximately 28.4% ($R^2_{adj} = 27.1\%$ $\Delta R^2=28.4\%$) of the variance in self-acceptance scores. Conversely, when the five-time perspectives were entered into the regression model at stage 2, intrinsic religiosity became non-significant and extrinsic religiosity became significant. A significant model emerged at step 2 ($F(7,112) = 49.05, p < .001$). The relationship among these variables was strong ($R=.87$), the variance explained by the model was approximately 75.4% ($R^2_{adj} = 73.9\%$ $\Delta R^2= 47.0\%$). The addition of time perspective to the regression model accounted for an additional 47.0% of the variance in self-acceptance scores. Past-positive and future time perspectives were significant positive predictors of self-acceptance. Past-negative time perspective was a significant negative predictor of self-acceptance. However, present-hedonistic and present-fatalistic time perspectives did not significantly predict self-acceptance.

Overall, the results supported hypotheses 1 and 2. Intrinsic religiosity, future perspective and past-positive perspective were positive predictors of PWB. In other words, as these variables increased, PWB also increased. Extrinsic religiosity and past-negative perspective were negative predictors, this meant that as extrinsic religiosity and past-negative perspective increased, PWB decreased. However, present-hedonistic perspective only negatively predicted autonomy and present-fatalistic time perspective only negatively predicted purpose in life, but not the other PWB dimensions. Thus, hypothesis 3 was not fully supported.

Discussion

The findings of the present study revealed that intrinsic religiosity was a positive predictor of PWB. This meant that as intrinsic religiosity increased, PWB increased alongside it. This was consistent with previous studies reporting positive associations between PWB and intrinsic religiosity (Alandete and Valero, 2013; Saleem and Saleem, 2017). Extrinsic religiosity negatively predicted PWB. This meant that as extrinsic religiosity increased PWB decreased, which was also consistent with previous literature (Maltby et al., 1999; Alandete and Valero, 2013). These findings supported hypothesis 1. However, when the five-time perspectives were added to the regression model at stage 2, intrinsic and extrinsic religiosity became no longer significant predictors of PWB. A possible explanation for this observation might be due to the possibility of time perspective potentially having a mediating effect. This observation has important implications for future research which will be discussed towards the end.

In terms of time perspective, past-negative perspective was a negative predictor of PWB. This meant that ruminating about negative events was associated with lower PWB. This finding makes sense because the inability to let go of painful past experiences can be psychologically draining to an individual, potentially leading to a significant reduction in meaning in life (Shterjovska and Achkovska-Leshkovska, 2014). Future perspective and past-positive perspective were positive predictors of PWB. These positive associations complemented Ryff's (1989) theoretical underpinning of PWB, involving greater meaning in life, establishing warm

relationships with others, exerting control over the environment, having autonomy, developing as an individual and accepting the self (Ryff, 2014). These findings supported hypothesis 2 and were consistent with Sailer's et al. (2014) findings.

Hypothesis 3 was not supported for present-hedonistic and present-fatalistic perspectives. Present-hedonistic and present-fatalistic time perspectives were not predictive of PWB. These findings conflicted and disagreed with Sailer's et al. (2014) findings. Sailer et al. (2014) reported that present-fatalistic perspective was predictive of lower PWB and present-hedonistic perspective was predictive of higher PWB. Possible reasons for present-hedonistic perspective and present-fatalistic perspective not predicting PWB could be due to having closer links to SWB than to PWB (Desmyter and De-Raedt, 2012). Present-hedonistic perspective is characterised by attaining pleasure and excitement at all costs (Zimbardo and Boyd, 1999). These characteristics might be more fundamentally important for happiness and life satisfaction (Przepiorka and Sobol-Kwapinska, 2018), which fall under SWB, thus, leaning more towards the hedonistic tradition. Furthermore, previous research consistently indicated that present-fatalistic attitudes have important implications on life satisfaction and happiness, which again aligns with SWB (Drake et al., 2008). This might potentially explain why Sailer's et al. (2014) findings were not replicated. However, to extend beyond previous literature, a critical next step is to uncover potential underlying mechanisms that would assist in explaining why intrinsic religiosity, future and past-positive time perspectives were predictive of higher PWB and why extrinsic religiosity and past-negative time perspective were predictive of lower PWB.

One potential underlying explanatory mechanism is cognitive resources. It is possible that intrinsic religiosity, past-positive perspective and future perspective promote PWB by providing individuals with important cognitive resources. According to literature endorsing intrinsically in a religion can promote a sense of coherence, meaning (Cappellen et al., 2016) and facilitate cognitive processes, which may in turn enhance PWB (Joshi et al., 2008). In contrast to extrinsic religiosity which exhibits substantial focus on attaining rewards (Doane et al., 2014), intrinsic religiosity offers a meaning-making framework, focusing on the existential development of the individual (Park and Yoo, 2016). This cognitive framework provides a meaningful way to interpret experiences of the world (Steger and Frazier, 2005), potentially incorporating coherence and balance to past, present and future, which according to Zimbardo and Boyd (2008) is optimal for PWB. Coherence provides an important cognitive construct which enables individuals to make sense of their lives and overcome existential life challenges (Aflakseir, 2012), potentially helping individuals to strive towards self-actualisation (Ivtzan et al., 2013). Indeed, intrinsic religiosity allows individuals to reassess the meaning of potentially problematic situations and perceive them as opportunities for spiritual development and personal growth, rather than obstacles in life (Mohammadi et al., 2018). This potentially allows individuals to become more resilient when faced with unpredictable challenges. Thus, the coherence, meaning and the positive outlook that come with these cognitive resources allow intrinsically religious individuals to hold a more positive rather than a negative cognitive attitude towards the past (Cappellen et al., 2016; Przepiorka and Sobol-Kwapinska, 2018). These cognitive resources might protect against the accumulation of past-negative memories, minimising the occurrence of repetitive unproductive thoughts, which in turn promotes PWB (Shterjovska and Achkovska-Leshkovska, 2014). Shterjovska and Achkovska-Leshkovska (2014) suggested that positive memories promote potential

cognitive resources for meaningfulness, by reducing concentration on negative experiences and equipping individuals to becoming future-oriented. It is also possible that these cognitive resources may also protect against present-hedonistic attitudes (excessive concentration on seeking pleasure), and present-fatalistic attitudes (hopelessness and helplessness), possibly by enhancing perceived control (Cappellen et al., 2016).

An alternative potential explanatory mechanism is the role of emotions. Perhaps intrinsic religiosity, future perspective and past-positive perspective increase positive emotions, which in turn increases PWB. Conversely, past-negative perspective and extrinsic religiosity might promote negative emotions, which reduce PWB. According to Fredrickson (2004) positive emotions are essential for well-being, particularly for optimal functioning. Consistent with the broaden-and-build theory, positive emotions enable optimal functioning through broadening individuals' thought-action repertoires (Fredrickson, 2004). Over time, the consistent reoccurrence of positive emotions increases mindfulness, purpose in life and optimism (Fredrickson et al., 2008), which in turn facilitates PWB (Fredrickson, 2004). Conversely, negative emotions like pessimism and rumination narrow thoughts and actions (Fredrickson, 2004). This underlying pathway of negative emotions might have potential linkages with extrinsic religiosity and past-negative time perspective, which might explain why these variables were associated with lower PWB in this study. Past-negative perspective and extrinsic religiosity might potentially increase negative emotions like rumination which is closely aligned with lower PWB (Imtiaz and Kamal, 2016). With such ruminating focus this can result in the accumulation of damaging memories and negative thinking which are psychological draining, therefore, reducing PWB and meaning (Shterjovska and Achkovska-Leshkovska, 2014). However, although these mechanisms can potentially explain why the results of the study have occurred, it is still important to be cautious and take into consideration that these mechanisms provide only potential explanations not absolute explanations.

Strengths

Not only was this research beneficial in terms of providing a comprehensive understanding of potential explanatory mechanisms, but also this research has helped to clarify the debate facing literature regarding religiosity and PWB. As religiosity is argued to be a multidimensional construct, Salsman and Carlson (2005) critiqued studies exploring religiosity as a single construct, claiming that they lack psychometric rigor due to failing to adequately assess religiosity. Thus, this study made sure to use a reliable and an adequate scale to assess facets of religiosity (Gorsuch and McPherson, 1989). The findings of this study revealed that Intrinsic religiosity was positively associated with PWB, whereas extrinsic religiosity was negatively associated with PWB. This was in accord with previous literature (Maltby et al., 1999; Alandete and Valero, 2013). Not only does the current study add consistency to previous research, but it also helps to contribute in clarifying the debate regarding religiosity, which is a huge advantage to the study.

Practical Implications, Limitations and Future Research

This study has important implications for future research. When the five-time perspectives were added to the regression model, intrinsic and extrinsic religiosity

became no longer significant predictors of PWB. This observation suggests the possibility of time perspective as a potential mediator. It would be beneficial and worthwhile for future research to investigate this further to support this observation.

This research has also brought into light an important practical application. As facets of religiosity and time perspective predicted PWB, this highlights the relevance of incorporating religiosity and time perspective into therapy. For example, during treatment, clinical psychologists, can focus on changing the cognitive styles of religious individuals or any individual with low PWB to a style that consists of a healthier balance of time perspectives. Having a balanced time perspective is optimal for PWB (Zimbardo and Boyd, 2008).

However, there are still limitations to consider. One notable limitation of the current study is that most of the participants were gathered through the Research Participation Pool, which means that they were psychology students. Not only does this produce an issue with generalisability, but also having psychology students as participants is a problem. It is possible that some of the psychology participants might have been familiar with some of the questionnaires used in this study; thus, social desirability bias might have occurred (Abernethy, 2015). However, as data were anonymous, this might have encouraged participants to portray themselves truthfully rather than favourably to the researcher (Coolican, 2014). Future research can improve this by having a more representative sample of participants, with equal numbers of participants across genders.

Conclusion

To summarise, this research offered insight into the relationship between religiosity, time perspective and PWB, which has not been investigated before. Investigating these variables collectively has contributed to literature by enhancing understanding of potential explanatory mechanisms. The study found that intrinsic and extrinsic religiosity were significant predictors at stage 1. However, with the addition of time perspective to the regression model, intrinsic and extrinsic religiosity became non-significant, suggesting the possibility of time perspective having a potential mediating effect. It is recommended for future research to investigate this further to support this observation.

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