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ORIGINAL PAPER

Associations between Screen-Based Activity, Spiritual Well-Being, and Life Satisfaction among Adolescents

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Abstract The current study examined how screen-based activity is related to spiritual well-being and life satisfaction among Czech adolescents, age ranged between 11 and 15 years. Results indicated that spending time on screen-based activities was predictive for spiritual well-being, but did not have a decisive effect on life satisfaction. We also found that spiritual well-being was significantly related to life satisfaction. Findings suggest that we ought to pay more attention to the influence of time spending on screen-based activities on spiritual well-being among adolescents to promote positive youth development.

Keywords Spiritual well-being · Screen-based activity · Life satisfaction · Adolescents' health

Introduction

The current study examines how adolescents' screen-based activity engagement affects their spiritual development and life satisfaction. Early spiritual growth plays an important role in resilience and coping, positive outlook, and a sense of happiness (Benson et al. 2003; Coyle 2001; Hill and Pargament 2008; Kim et al. 2013; Zullig et al. 2006). Also, we have been informed that increased sedentary time with screen-based activities among young people is significantly related to their health-related outcomes including mental health and emotional well-being (e.g., Brodersen et al. 2005; Gopinath et al. 2012; Holder et al. 2009; Iannotti et al. 2009; Lacy et al. 2012; Pearson and Biddle 2011). This led us to

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argue that there might be a significant association between a large amount of time for screen-based activities and spiritual well-being and quality of life among children and adolescents. Taken all, we were interested in how spending time on screen-based activities influences young person's spiritual development and life satisfaction. In order to systematically examine the relationships between screen-based activity engagement, spiritual well-being, and life satisfaction, we developed a set of study hypotheses.

Study Hypotheses

Computer and monitor-based activities have usurped traditional outdoor play that increasingly change young people's social environment and life experience. According to Iannotti et al. (2009), the use of screen-based media such as playing computer games, watching television, texting, and using the Internet, was significantly related to psychological, emotional, and social well-being among young people. Studies also show that children and adolescents who spend more time doing screen-based activities are less likely to develop creativity, a sense of morality, self-esteem, and social tolerance and adaptability (Iannotti et al. 2009; Suchert et al. 2015). That is, a lot of time spending on the technological devices impedes young persons' cognitive and intellectual development that further manifests the manner, relationship, and experience subjected to spiritual engagement. This led us to hypothesize that high levels of time young people are engaged in screen-based sedentary activities would be associated with lower scores in spiritual well-being.

H_1 The more time the adolescents spent in screen-based activities, the less spiritual well-being they develop.

This current study also examines how screen-based activities are associated with life satisfaction among early adolescents. Studies reveal that the total amount of sedentary time spent on watching television or using computer significantly influences lower life satisfaction in young people (Stepanikova et al. 2010; Zullig and White 2011). Screen-based sedentary activities were often found to inform negative body image, aggressive response, and children's unfavorable behavior (Finne et al. 2013; Norman et al. 2005; Williams et al. 1999). Also, those who are engaged in higher use of screen-based media are more likely to demonstrate complaints about health, risk behaviors, loneliness, and poorer family support, which, in turn, diminish their quality of life (Boniel-Nissim et al. 2015; Stepanikova et al. 2010). All of this suggests that screen-based activities negatively contribute to life satisfaction, either directly or via underlying mechanisms such as negative social outcomes and risk behavior. Therefore, we hypothesized that the more children and adolescents spend their time on screen-based activities, the less likely they are to demonstrate satisfaction with their everyday life.

H_2 The more screen-based activities adolescents are engaged in, the less likely they are to satisfy their life.

Young people's spirituality is strongly linked to their happiness and self-concept regardless of their religious practices such as attending church services, praying, and meditating (Baker 2003). Jafari et al. (2010) found that religiosity and spirituality (e.g., forgiveness and hope) significantly predicted mental health and psychological well-being among college students. Likely, research has shown that spirituality is significantly associated with life satisfaction (Kelley and Miller 2007; Kim et al. 2013; Peterson and Webb 2006), subjective well-being (Casas et al. 2009; Lun and Bond 2013), and happiness (Abdel-Khalek 2006; Ciarrocchi and Deneke 2005; Holder et al. 2010). Kim et al.

(2013) also found that positive aspects of the religiosity and spirituality—daily spiritual experiences, forgiveness, and congregational support—significantly predicted life satisfaction among Korean American adolescents. Therefore, we also test if spiritual well-being is associated with the measure of life satisfaction among adolescents.

H_3 Adolescents' spiritual well-being influences their life satisfaction.

Methods

Data Collection and Sample

Data were collected from primary school pupils in Czech Republic in November 2013. A total number of 7 primary schools located in rural as well as in urban areas in Czech Republic were randomly chosen and contacted to recruit our study sample. Since all of the contacted 7 schools agreed to participate in the study, parents were first informed about the study and asked to indicate their agreement or refusal to participate in the study through a letter to school administrators. Only those school pupils whose parents agreed to participate in the study were sampled. For this current study, a non-experimental survey design was employed by utilizing a self-administered questionnaire (Sproull 2002). Questionnaire was developed to investigate a wide range of topics of health behaviors, activities, disease and mobility, and various aspects of psychological well-being among school-aged children and adolescents. Questionnaires were administrated in 5th and 9th grades by trained research assistants in the absence of a teacher during regular class time. We obtained a total number of 417 usable questionnaires (response rate: 83.2%). Final sample consisted of 416 primary school pupils (51.6% boys), age ranged from 11 to 15 years.

Measurement

Multiple questionnaire items were used to measure spiritual well-being, screen-based activities involvement, and life satisfaction. A total of 10 items were used in a random order to measure spiritual well-being employing a Likert scale. Six of them were adapted from an existent study by Gomez and Fisher (2003), and four items were added by the authors of the current study to investigate the stretched meaning of spirituality among study participants. Questionnaire included items related to how the respondents viewed themselves (e.g., "trust yourself"), relationship with others (e.g., "be forgiving of others") and natural environment (e.g., "care for the natural environment"), and life (e.g., "feel that your life has meaning or purpose"). Response choices for spiritual well-being measure ranged between 1 (not at all important) and 5 (strongly important).

It is important to note that religious traditions were de-emphasized in the measure of spiritual well-being in the current study. We argue that spirituality and religion might be empirically separated and there is a myriad of ways how the two affect human life (Berry 2005; Casas et al. 2009). Religiosity includes specific social norms and principles, which represent a discipline of individual decision making. For example, children who are forced to follow religious traditions may limit the development of their self-esteem due to the underlined guiltiness and sanctioned prejudice such as homophobia (Barnes et al. 2000). We view spirituality as to be more embracive. That is, people who indicate that they are more spiritual appear to place more emphasis on a sense of humanity such as ethnic and cultural diversity beyond their religious orientation. Holder et al. (2009) also found a

positive relationship between spirituality and happiness in children, but religious practice was not predictive for the measure of happiness.

In order to assess the respondents' screen-based activities, a total of three questionnaire items were used (e.g., "watching television") employing a Likert scale. Response categories for the items ranged from 1 (not at all) to 9 (7 hours or more per day). Life satisfaction was measured using a single questionnaire item as a satisfaction with life as a whole. The respondents were asked to indicate the level of satisfaction with their life in overall which ranged from 1 (least satisfied) to 10 (most satisfied).

Data Analysis

We first conducted a series of descriptive analysis to understand the structure of the data and to detect irregularities and missing data among the observed variables (Sproull 2002). In order to determine the internal consistency of the measured variables, Cronbach's alpha value of each construct was calculated. The measurement validity was examined using the Confirmatory Factor Analysis (CFA); the goodness-of-fit indices, including the ratios of Chi-squared to the degrees of freedom, comparative fit index (CFI), normed fit index (NFI), and root-mean-square error of approximation (RMSEA), were reported (Bentler 1990; Kline 2005). With the confidence of the internal consistency and validity of the measures, we tested study hypotheses in the structural model by examining standardized estimates of path coefficients between the predictor variables. The Statistical Package for the Social Sciences (SPSS 16.0) and SPSS Amos 18 programs were used for data analysis.

Results

Preliminary Analysis

Table 1 provides the descriptive statistics of the measured variables and the internal consistency of the constructs. The measured items were significant, with the t value ranging from 5.097 to 16.709. The Cronbach's alpha value indicated acceptable reliability coefficients of the measured variables: .622 for the measure of screen-based sedentary behavior and .882 for the measure of spiritual well-being. Due to the nature of measured items, we did not expect a high reliability for the measure of screen-based sedentary behavior involvement. Also, because we used a single questionnaire item to measure life satisfaction, the Cronbach's alpha value for life satisfaction was not calculated. The goodness-of-fit indices of the measurement model indicated an acceptable fit to the sample data: $\chi^2 = 136.501$ ($df = 58$, $p < .001$), CFI = .962, NFI = .970, and RMSEA = .047. Accordingly, the initial measures of the study were all retained to examine the hypothesized relationships between spiritual well-being, screen-based activities, and life satisfaction in the structural model. In addition, we found that the study variables were moderately correlated with each other (−.097 to .686). Table 2 shows the correlations between the measured variables.

Hypotheses Test

Figure 1 displays the tested relationships and standardized estimates of path coefficients between latent factors. According to the results, the measure of screen-based activities was

Table 1 Descriptive statistics of the measured variables and internal consistency of the constructs

			Cronbach's α	Mean (SD)	*t* value
Sedentary behavior	SB 1	Frequent watching TV	.622	4.11 (1.61)	7.706
	SB 2	Frequent playing games on PC		3.78 (2.09)	7.091
	SB 3	Frequent use of the Internet		4.29 (2.26)	8.359
Spiritual well-being[a]	SW 1	Be kind to other people	.882	4.27 (0.90)	5.097
	SW 2	Be forgiving of others		4.17 (0.93)	9.930
	SW 3	Feel that life has meaning or purpose		4.47 (0.96)	12.850
	SW 4	Experience joy (pleasure, happiness) in life		4.61 (0.82)	14.622
	SW 5	Feel connected to nature		4.10 (1.07)	10.939
	SW 6	Care for the natural environment		4.05 (1.08)	11.706
	SW 7	Trust yourself		4.44 (0.89)	13.070
	SW 8	Believe in true friendship and love		4.52 (0.86)	16.709
	SW 9	Trust your family and friends		4.73 (0.72)	14.075
	SW 10	Believe that everything will turn out all right		4.48 (0.91)	16.606
Life satisfaction[b]	LS1	My life is satisfactory at present	–	7.70 (1.99)	–

Goodness-of-fit indices: $\chi^2 = 136.501$ ($df = 58$, $p < .001$), CFI = .962, NFI = .970, RMSEA = .057, AIC = 230.501

[a] Questionnaire items for spiritual well-being SH1–SH6 were borrowed from Gomez and Fisher (2003), and items SH7–SH10 were appropriated by the authors of the study

[b] Life satisfaction was measured using a single questionnaire item

a significant predictor of spiritual well-being, $\beta = -.258$, $SE = .040$, t value $= -3.714$. However, the measure of screen-based activities did not account for additional variance for life satisfaction, which, in turn, indicates that screen-based activities may not have a decisive effect on life satisfaction. Results also revealed that the measure of spiritual well-being was predictive for life satisfaction, $\beta = .284$, $SE = .190$, t value $= 5.081$. The goodness-of-fit indices for the hypothesized structural model indicated a good fit to the sample data: $\chi^2 = 106.450$ ($df = 61$, $p < .01$), CFI = .979, NFI = .952, RMSEA = .042, and AIC = 194.450.

Discussion

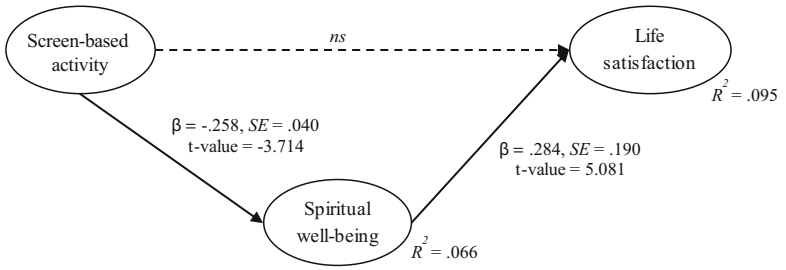
This current study explored the relationships between screen-based sedentary behavior, spiritual well-being, and life satisfaction among school-aged children and adolescents. Study findings indicated that spending time on screen-based activities was negatively related to spiritual well-being. This suggests that we have to pay more attention to the influence of screen-based sedentary activities on spiritual growth in children and adolescents to better promote positive youth development and quality of life among young people. Because amount of time on screen-based activities is mundane these days, we are to guide young persons so that they spend time more constructively in diverse and meaningful activities that counterbalance the negative effect of screen-based activities (Lacy et al. 2012).

Table 2 Correlations between the measured variables

	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	SB1	SB2	SB3	LS
SW1	–													
SW2	.557**	–												
SW3	.339**	.235**	–											
SW4	.482**	.366**	.618**	–										
SW5	.428**	.418**	.301**	.356**	–									
SW6	.424**	.468**	.248**	.309**	.686**	–								
SW7	.424**	.289**	.409**	.594**	.339**	.337**	–							
SW8	.503**	.380**	.514**	.539**	.308**	.400**	.519**	–						
SW9	.405**	.324**	.457**	.454**	.386**	.430**	.405**	.509**	–					
SW10	.487**	.419**	.483**	.533**	.397**	.451**	.508**	.596**	.655**	–				
SB1	−.104*	.031	.029	−.079	−.076	−.114*	−.037	−.029	−.102*	−.058	–			
SB2	−.197**	−.026	−.086	−.081	−.134**	−.151**	−.055	−.105*	−.171**	−.133**	.252**	–		
SB3	−.168**	−.074	−.038	−.097*	−.300**	−.335**	−.121*	−.076	−.175**	−.112*	.344**	.279**	–	
LS	.211**	.211**	.182**	.213**	.275**	.248**	.134**	.133**	.228**	.215**	−.048	−.016	−.137**	–

Pearson correlation with two-tailed

** $p < .01$; * $p < .05$



Goodness-of-Fit-Indices: $\chi^2 = 106.450$ ($df = 61$, $p < .01$), CFI =.979, NFI = .952, RMSEA = .042, AIC = 194.450.

Note: One-headed lines indicate a causal path between latent factors and the dotted line indicates no significant path between factors.

Fig. 1 A tested hypothesized model of screen-based activities, spiritual well-being, and life satisfaction

It was an unexpected result that there was no significant relationship between screen-based sedentary activities and life satisfaction. It could be that spending time on screen-based activities may not be a straightforward antecedent of life satisfaction among children and adolescents. Rather, the sequential outcomes of too much time on screen-based sedentary activities such as a lack of physical activity, sleeping problems, and negative diet habits might have a stronger effect on life satisfaction. Future studies should investigate the causable outcomes of screen-based sedentary behavior and its association with life satisfaction. We also note that there might be complexity of the factors that contribute to young people's life satisfaction including personal (e.g., self-efficacy), social (e.g., relationships with family and peers), and environmental (e.g., social capital) (Huebner et al. 2004). For example, although a significant association was found between use of electronic device and lower life satisfaction, the use of electronic device contributed to increasing friendship quality as a communicative means (Valkenburg and Peter 2007). Future studies should expand our findings to explore the interactive effect of screen-based sedentary behavior and other health-related variables on life satisfaction among children and adolescents.

Results also indicated that spiritual well-being accounted for additional variance in the measure of life satisfaction. Finding of the significant relationship between spiritual well-being and life satisfaction is consistent with the previous literature (e.g., Baker 2003; Casas et al. 2009; Ciarrocchi and Deneke 2005; Kelley and Miller 2007; Kim et al. 2013). In this regard, we are to provide better insights into the beneficial inspiration associated with spirituality that contributes to the intellectual and emotional maturity among children and adolescents. For example, educational and training practitioners should be mindful about the role of spirituality in practice with children and adolescents and develop spiritual resources that help young people to learn their potential and positive view on life. Experience of spiritual being can be coordinated as an important adjunct to intervention on clinical conditions among children and adolescents. The significant relationship between spiritual well-being and life satisfaction revealed in our study is also helpful for future researchers who elaborate the study finding to expand our understanding of the quality life and well-being in young persons.

Some limitations should be discussed. The self-reported nature of the questionnaire might result in bias in the relationships between the study variables. Therefore, future studies with an objective measure of screen-based activities engagement should be

guaranteed. Also, a single-item scale to measure life satisfaction might be insufficient to support construct validity. In order to better grasp the meaning of life satisfaction among young people, future studies should be mindful of their actual life domains. For example, measure can be more specific asking their satisfaction level regarding relationship with family–peers and leisure time activities. We also recommend that future studies employ different study designs (e.g., experimental design) to examine longitudinal and potential causal relationship between spiritual development and life satisfaction improvement. Such investigation will allow us to more precisely evaluate the effect of spirituality intervention in the association between screen-based activities and life satisfaction.

Another limitation of this current study is that there were no controls for demographic variables. As a preliminary stage of our research, we were to investigate potential empirical linkage between screen-based sedentary behavior, spiritual well-being, and life satisfaction using a sample of data. We, however, acknowledge that the relationships revealed in our study might be moderated by different culture and socioeconomic backgrounds (Casas et al. 2009; Jafari et al. 2010; Kelley and Miller 2007). Future studies should examine the relationship between screen-based activities and spiritual well-being with life satisfaction respecting the variability within the study samples.

Conclusion

Our study findings contribute to the knowledge base providing information about correlates of screen-based activities, spiritual well-being and life satisfaction in the Czech context and beyond. Study findings indicate that spiritual well-being significantly affects gratification and quality of life among adolescents that reinforces the importance of the incorporation of spiritual domain into health practice and education. We ought to develop spirituality intervention and educational curriculum to improve young people's psychological well-being and life satisfaction. Also, we should better regulate the negative impacts of screen-based sedentary activities on spiritual well-being, which, in turn, contributes to young people's life satisfaction.

Compliance with Ethical Standards

Conflict of interest Authors declare that they have no conflict of interest.

Ethical Approval We do declare that all procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. Also, current study was approved by the Ethics Committee of the Faculty of Physical Culture, Palacky University in Olomouc.

Informed Consent Informed consent was obtained from all study participants.

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