

Zeitschrift für

Gerontologie + Geriatric

mit **European Journal of Geriatrics**

Elektronischer Sonderdruck für

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Ein Service von Springer Medizin

Z Gerontol Geriat 2014 · 47:508–512 · DOI 10.1007/s00391-013-0539-z

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Verspieltheit, betrachtet über die Lebensspanne, und ihre Beziehung zum Wohlbefinden

Ergebnisse einer Online-Studie



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GERIATRIE



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Playfulness over the lifespan and its relation to happiness

Results from an online survey

Playfulness in adults is an understudied topic. Little is known about playfulness and its correlates in the elderly, and in particular about its relation to well-being. This study is a call for a stronger consideration of playfulness in research and practice. A positive relation with various components of happiness is reported and its potential for interventions to increase well-being is highlighted.

The main focus of the present study is to argue for a stronger consideration of playfulness in research and practice in gerontology. Playfulness is defined as “the predisposition to frame (or reframe) a situation in such a way as to provide oneself (and possibly others) with amusement, humor, and/or entertainment” ([1], p 955). There is little research on playfulness across the lifespan and most research focuses on infants and children. However, it is argued that playfulness can contribute to healthy aging, e.g., via its relations to positive emotions, well-being, intrinsic life goals, or coping with stress [6, 18, 21, 22, 29]. Amongst others, playfulness has also been associated with creativity and cognitive achievement [18]. It is argued that enjoying intellectually challenging activities and activities that foster positive emotions can contribute to psychological health and the development of individual (intellectual, physical, social, and psychological) resources [6]. Playfulness, via its link to promoting an active way of life (as

a health-oriented behavior), might also be associated with greater levels of physical activity [19]. A better understanding of how playfulness is distributed across the lifespan and of its correlates with indicators of positive psychological functioning in different age groups would provide hints on the potentially beneficial role of playfulness in healthy aging.

Studies on playfulness in adults frequently report small age effects with higher playfulness in younger participants [17, 18]. However, with few exceptions [21, 29], samples in these studies involve student populations only and frequently do not cover broad age ranges. Using a larger and comparatively more diverse sample (n=979), Proyer and colleagues [21] did not find age-related differences in a scale assessing a playful vs. a serious attitude. The present study aims to contribute to a better understanding of potential age trends. Data were gathered from a large sample that allows testing for such trends. To disentangle possible effects of age, the analyses were computed for the full sample, as well as for age groups separately (each covering spans of about 5 years). It was hypothesized that the playfulness scores would not vary strongly in the present sample and that there would only be minor differences among the age groups.

From an evolutionary perspective, playfulness signals different characteristics in males and females (non-aggressiveness vs. youth and health as signs of fecundity [3]) and, therefore, one might ex-

pect gender differences. Playfulness may also be associated with certain gender role stereotypes in the general perception of the trait. However, earlier studies usually found no gender differences in psychometric measures of playfulness [17, 18]. It has been mentioned previously that samples in earlier studies were frequently biased toward younger and student populations. Thus, it has not yet been tested whether gender differences occur at different age levels. This will be tested in the present study in more detail. Overall, it was expected that men and women do not differ in their playfulness over the lifespan.

Proyer et al. [21] found a positive relation between a playful vs. serious attitude and quality of life. This finding deserves further attention and the authentic happiness inventory (AHI) [28] was used in this study for testing the playfulness–happiness relation in a larger sample. It was hypothesized that there would be a positive relation [21, 25] between happiness and playfulness in all age-groups tested in this study. Happiness and quality of life, however, are not the only relevant criteria if relations of playfulness with general well-being are of interest. It is argued that playfulness facilitates the experience of positive emotions in all age groups and that greater levels of playfulness are associated with greater well-being across the life-span. Peterson and Seligman [14] use humor and playfulness synonymously in their classification of character strengths

Tab. 1 Correlation coefficients (Pearson) between subjective measures of playfulness and happiness and the pleasurable, engaged, and meaningful life for the entire sample and split by age groups

	Happiness	Pleasure	Engagement	Meaning
18–25	0.37 ^b	0.33 ^b	0.05	0.15 ^a
26–30	0.23 ^b	0.38 ^b	0.29 ^b	0.25 ^b
31–35	0.19 ^b	0.31 ^b	0.12 ^a	0.21 ^b
36–40	0.17 ^b	0.27 ^b	0.14 ^b	0.13 ^b
41–45	0.11 ^a	0.25 ^b	0.13 ^b	0.16 ^b
46–50	0.11 ^a	0.25 ^b	0.16 ^b	0.13 ^b
51–55	0.15 ^b	0.28 ^b	0.15 ^b	0.19 ^b
56–60	0.16 ^b	0.22 ^b	0.15 ^b	0.09
61–65	0.28 ^b	0.29 ^b	0.23 ^b	0.08
66–70	0.00	0.20 ^a	0.21 ^a	0.05
≥71	0.39 ^b	0.11	0.22	0.11
Total	0.16 ^b	0.28 ^b	0.14 ^b	0.14 ^b

Number (n) (total sample)=3687 (happiness)/4085 (orientations to happiness), n (18–25)=221/258, n (26–30)=255/288, n (31–35)=305/334, n (36–40)=381/431, n (41–45)=580/643, n (46–50)=637/706, n (51–55)=565/607, n (56–60)=381/419, n (61–65)=218/240, n (66–70)=94/104, n (≥71)=50/55.^ap<0.05,^bp<0.01.

(positively valued traits). Ruch et al. [25, 26] studied relations of humor/playfulness as a strength with the core elements (orientations to happiness) of Seligman's [27] "authentic happiness theory" The 'pleasurable life' akin to hedonism (most directly associated with positive emotions), the 'engaged life', which is associated with frequent experiences of flow, and the 'meaningful life', which refers to older conceptualizations of eudaimonia (using one's strengths for a greater good). Seligman argues that they represent three distinct but not incompatible routes to happiness [2, 12, 13, 22, 24]. Humor/playfulness as a strength correlated positively with the pursuit of a pleasurable and engaged life in all age groups tested, as well as with a meaningful life, with the exception of the group of those aged 70 years and older. In a more direct test, Proyer [18] found a positive relation between playfulness and measures for the pleasurable and the engaged life. One aim of the present study was to replicate this finding and test these relations across several age groups.

The study uses the short measure of adult playfulness (SMAP) [17], an established questionnaire with well-known psychometric properties, to extend previous research in several aspects and has three main aims: (1) to investigate playfulness over the lifespan with a focus on older participants, (2) replicate findings in a larger sample on the positive relationship to happiness in general and three specific

orientations to happiness, and (3) examine gender differences.

Methods

Participants

The sample consisted of 4100 German-speaking respondents aged between 18 and 92 years ($M=45.38$, $SD=12.00$); 78.6% were women. Approximately one fifth (18.0%) were single, 46.2% were married, 22.7% were in a partnership but not married, 11.5% were divorced or separated, and 1.6% were widowed. Only a small percentage had basic schooling (3.3%), 17.8% had completed vocational training, 7.0% had a school-leaving diploma qualifying them to attend a university, 16.3% had a degree from a University of Applied Sciences, and 42.7% held a diploma from a University.

Data were analyzed using the full sample, but also using sub-samples. To provide a breakdown of age effects, the sample was split into eleven age groups according to 5-year intervals (except for the youngest and oldest groups): 1=18–25 years ($n=50$ men/210 women); 2=26–30 years ($n=68/223$); 3=31–35 years ($n=65/272$); 4=36–40 years ($n=91/342$); 5=41–45 years ($n=122/522$); 6=46–50 years ($n=134/573$); 7=51–55 years ($n=116/492$); 8=56–60 years ($n=93/328$); 9=61–65 years ($n=77/163$); 10=66–70 years ($n=37/67$); 11=71 years and older ($n=26/29$).

Instruments

The SMAP [17] assesses an easy onset and high intensity of playful experiences along with the frequent display of playfulness in adults (five items, e.g., "I am a playful person"). Answers are given in a four-point answer format (1="strongly disagree", 4="strongly agree"; $\alpha=0.89$ in this sample). Earlier studies provide evidence of its good psychometric properties, high stability, and validity [18, 20].

The orientation to happiness scale (OTH) [12, 23] is an 18-item questionnaire for the assessment of a pleasurable life (e.g., "Life is too short to postpone the pleasures it can provide"; $\alpha=0.73$ in this sample), an engaged life (e.g., "I am always very absorbed in what I do"; $\alpha=0.66$), and a meaningful life ("I am always very absorbed in what I do"; $\alpha=0.76$; six items each) using a five-point scale (1="very much unlike me", 5="very much like me"). The OTH has been widely used in research [2, 13].

The AHI [28] uses 24 sets of five statements from which the person has to choose the statement that describes his/her feelings during the past week best for the assessment of overall happiness ($\alpha=0.93$ in this sample). The good psychometric properties and the validity of the AHI have been confirmed in several studies [7, 24, 28].

Procedure

Participants were recruited via a website which offers several questionnaires for positive psychological assessment and where people can participate in positive interventions (<http://staerkentraining.ch>). The services are available for free and inclusion criteria are age 18 years or older, not undergoing psychotherapeutic or psychiatric treatment, and fluency in German. Participants log on to the website with an individual password and receive individualized feedback on their results after completion of the questionnaires (via email). The website has been advertised via media reports. Participants completed the SMAP first, followed by the OTH and the AHI. A regional ethics committee approved the study. Although collecting data in online studies has been

criticized (e.g., for sampling biases), there is empirical evidence that the data are comparable to those collected in conventional ways [10]. The study was planned and conducted in accordance with current guidelines for “good practice” in Internet-delivered testing [4].

Statistical analyses

The research hypotheses were tested by means of: (a) analyses of variances for uncovering differences in playfulness across different age groups and (b) correlation analyses (bivariate correlations between playfulness and happiness and orientations to happiness). The analyses also considered potential gender differences. Additionally, the predictive power of the three orientations to happiness, above and beyond demographics, was tested with multiple regression analyses.

Results

Playfulness across different age groups

The SMAP scores were normally distributed ($M=2.47$, $SD=0.67$, skewness $=-0.01$, kurtosis $=-0.33$). For the total sample a negative correlation with age was found, $r=-0.13$, $p<0.0001$ and men ($M=2.55$, $SD=0.67$) exceeded women in their playfulness ($M=2.45$, $SD=0.67$), $t(4098)=3.60$, $d=0.15$. An 11 (age groups) by two (gender) ANOVA was performed with playfulness (SMAP) as dependent variable. The interaction between age and gender was not significant, $F(10, 4078)=0.54$, $p=0.92$. There were significant main effects for gender ($F(1, 4078)=9.74$, $p<0.01$, partial $\eta^2=0.001$) and the comparison of the age groups, $F(10, 4078)=6.23$, $p<0.001$, partial $\eta^2=0.015$. Hence there were small effects for gender and larger effects for the differences in the 11 age groups. **Fig. 1** shows the mean scores for the 11 age groups, split for men and women.

Fig. 1 shows that men scored numerically higher in playfulness in most age groups, yet all confidence intervals overlapped. The differences between the highest and the lowest mean score were about half a standard deviation in both groups, i.e., 0.28 for men and 0.39 for

Z Gerontol Geriat 2014 · 47:508–512 DOI 10.1007/s00391-013-0539-z
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Playfulness over the lifespan and its relation to happiness. Results from an online survey

Abstract

Background. Playfulness is an understudied topic in adults and particularly among the elderly. There is no large study to date on age-related changes in playfulness across the lifespan, nor have relations with different indicators of well-being been investigated in much detail as yet.

Participants and methods. In total, 4100 adults completed online self-ratings on their playfulness, happiness and Seligman's three orientations to happiness (a pleasurable, engaged and meaningfully fulfilled life).

Results. In a cross-sectional design, playfulness was stable across the lifespan; variations in the mean scores were relatively small

(half a standard deviation). Yet participants <40 years yielded the comparatively lowest scores. There were no gender differences. Playfulness was best predicted by the scale assessing a pleasurable life and was positively related to happiness.

Conclusion. Playfulness seems to be of relevance in all age groups and displays robust relations with different indicators of well-being.

Keywords

Adult playfulness · Elderly · Happiness · Orientations to happiness

Verspieltheit, betrachtet über die Lebensspanne, und ihre Beziehung zum Wohlbefinden. Ergebnisse einer Online-Studie

Zusammenfassung

Hintergrund. Verspieltheit im Erwachsenenalter und besonders im höheren Alter ist ein wenig erforschtes Merkmal. Es gibt bislang keine große Studie zu altersspezifischen Veränderungen. Beziehungen zu Indikatoren des Wohlbefindens wurden ebenfalls noch nicht ausführlich untersucht.

Material und Methoden. In einer Online-Studie bearbeiteten 4100 Erwachsene Maße zu Verspieltheit, Wohlbefinden und Seligman's Orientierungen zum Wohlbefinden (das vergnügliche, engagierte und sinnerfüllte Leben).

Ergebnisse. In einem Querschnittsdesign war die Verspieltheit über die Lebensspanne hinweg stabil verteilt; die Mittelwerte wiesen nur geringe Variation auf (eine halbe Stan-

dardabweichung). Personen <40 Jahre wiesen aber die vergleichsweise niedrigsten Werte auf. Es gab keine Geschlechtsunterschiede. Die Skala zum vergnüglichen Leben hat sich als bester Prädiktor für Verspieltheit erwiesen; es fanden sich positive Beziehungen zum Wohlbefinden.

Schlussfolgerung. Verspieltheit scheint in allen Altersgruppen von Bedeutung zu sein und weist robuste Beziehungen zum Wohlbefinden auf.

Schlüsselwörter

Verspieltheit im Erwachsenenalter · Ältere Menschen · Wohlbefinden · Orientierungen zum Wohlbefinden

women. Hence, there were only small variations in SMAP.

An ANOVA in the total sample with the 11 age groups as grouping variable and SMAP as dependent variable yielded a significant effect, $F(10, 4099)=9.61$, $p<0.001$. Post hoc tests (LSD) revealed that mostly those younger than 40 years had higher scores than all other groups. Effect sizes ranged from $d=0.24$ (18–25 vs. 66–70) to 0.45 (18–25 vs. 46–50). Yet it warrants mentioning that playfulness was also higher among those aged between 66 and 70 years, with this group only being lower than those in the youngest group,

but higher than those aged between 46 and 50 years ($d=0.22$). Those ≥ 71 years only differed from the three youngest age groups (ds between 0.32 and 0.40).

It should be mentioned that the range of the mean scores ($=0.26$; between 2.40 in those aged 71 years and older and 2.66 in those aged 18–25 years) would not justify saying that any of the age groups covered in this sample could be classified as not playful. All mean scores ranged within the answer categories around the midpoint of the scale.

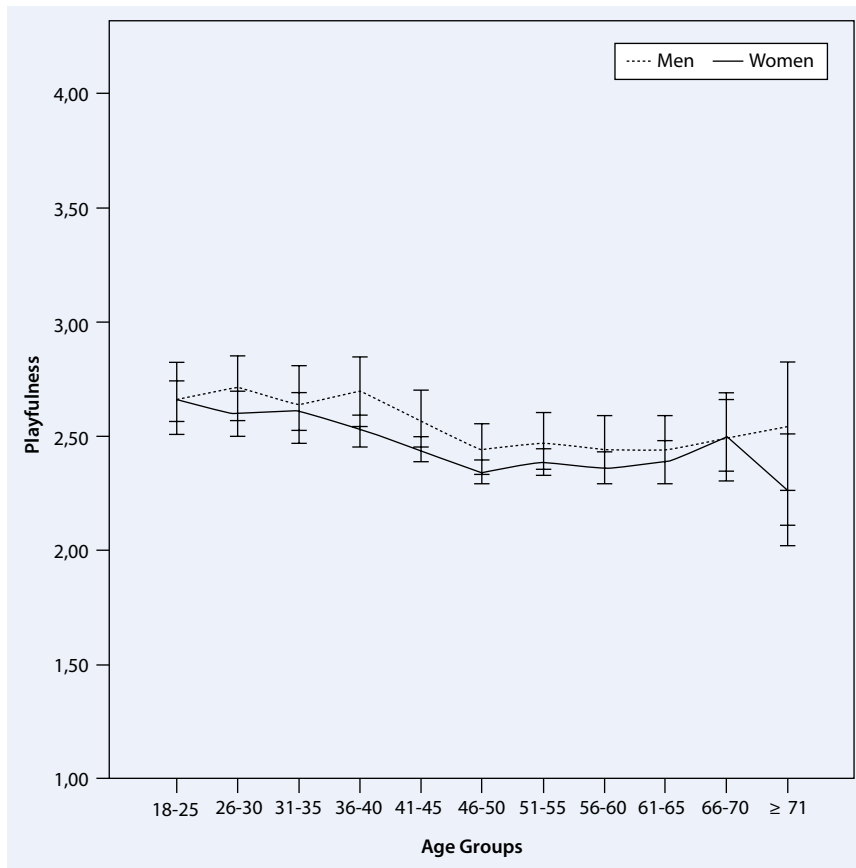


Fig. 1 ▲ Mean scores for playfulness in men and women across 11 age groups split for men (dotted line) and women (full line)

Associations of playfulness with happiness and orientations to happiness

A multiple regression analysis in the total sample (not shown in detail) with age and gender (step 1; method: enter) and the three orientations to happiness [12, 27] as predictors (step 2; stepwise) yielded a $R^2=0.10$; $F(4, 4084)=113.33$, $p<0.001$. In the final model, the pleasurable life ($\beta=0.25$, $p<0.001$; $\Delta R^2=0.07$) and the meaningful life ($\beta=0.08$, $p<0.001$; $\Delta R^2=0.01$) entered the equation; demographics contributed a further 2% to the prediction. Hence, the pleasurable life emerged as the best predictor of playfulness. Analysis of the bivariate correlations (also with happiness) in the 11 age groups provided further information on age-specific associations (see **Tab. 1**).

■ **Tab. 1** shows that, as expected, playfulness was positively correlated with happiness and numerically strongest with the pleasurable life, but also positively

with the engaged life and the meaningful life (total sample). The sample of 66- to 70-year-olds was somewhat atypical in the sense that there was a zero correlation with happiness—yet correlations with pleasure and engagement were in an approximately comparable range to those found for other age groups. At present, it cannot be ruled out whether this was an effect of the sample or whether this is replicable in other samples. The numerically strongest relations between playfulness and happiness were found in those aged between 18–25 years, 61–65 years, and those aged 71 years and older.

If the regression analyses (predicting playfulness from the orientations to happiness) were repeated split by group (same specifications as above; controlling for gender only in step 1), multiple squared correlation coefficients between $R^2=0.04$ (66–70 years and ≥ 71 years) and 0.17 (26–30 years) emerged in the final model. Pleasure contributed to the prediction in all age groups (ΔR^2 s were between

0.05 and 0.15). In those aged 26 and 30, 31–35, 41–45, 46–50, and 51–55 years meaning also entered the equation ($\Delta R^2=0.03$, 0.02, 0.01, 0.01, and 0.02). The exceptions were those aged 66–70 years and those ≥ 71 years, where the F -scores were not significant, $F(2, 103)=2.29$, $p=0.11$ and $F(1, 54)=2.46$, $p=0.12$.

Discussion and implications for the practice

This study shows that the expression of playfulness was comparable across the age spans covered in this study and that the variation in the mean scores was comparatively small (about half a standard deviation). Therefore, the notion that elderly people are not interested in being playful or are less playful than younger people was not supported. This underlines the claim that more research is needed for testing the role of playfulness in healthy aging and for well-being and happiness in the elderly. It is argued that playfulness can be a resource (e.g., for coping with stressors or as an elicitor of positive emotions) for people of all ages and that people find age-specific ways of exerting their playfulness, e.g., from physically active forms to intellectual/creative variants. However, this needs to be tested directly in future studies. As expected, gender only played a minor role and, on the whole, men and women do not seem to differ in their playfulness. Future research will show whether this also applies to all facets of playfulness or whether specific facets (e.g., those tied to social relations [16]) are prone to gender differences.

Playfulness was also associated with greater levels of happiness (with the exception of those aged between 66 and 70 years, where it was uncorrelated). These data do not allow for causal interpretations, but the findings may suggest that interventions targeted at fostering playfulness can help boost happiness among elderly people [11, 29]. There is evidence that humor-based interventions are potent in improving life satisfaction in various settings [5, 7, 9, 11] and one might argue that interventions addressing an individual's level of playfulness (or some of its facets) can help to increase well-being or ameliorate levels of depression, e.g.,

via facilitating the experience of positive emotions [6]. More research is needed on whether specific facets of playfulness (e.g., silly/childish vs. intellectual [8, 16]) contribute differently to well-being and differently at various age levels.

In terms of Seligman's [27] orientations to happiness, playfulness was associated with hedonism. The pleasurable life demonstrated the largest incremental validity in the prediction of playfulness, with the exception of those aged ≥ 71 years. This age group deserves further attention in the future since the sample size was comparatively small in this study and replication is needed. Relations between the engaged and the meaningful life were mixed. Both regression and correlation analyses suggested that, for specific age groups, the two might have the potential to contribute to well-being [2, 12, 13].

The study has several limitations. All data are cross-sectional and a longitudinal study to test developmental trends in more detail is lacking. The correlational analyses do not allow for causal interpretations and studies are encouraged that either experimentally manipulate variables associated with playfulness (e.g., on the level of perceived stress) or that provide real-life observations. Additionally, the breakdown into 11 age groups in this study can be debated as they were not derived theoretically but more pragmatically based on the available data. Data were collected via the Internet. Although there is evidence on the convergence of data with other ways of collecting data [10], specific biases (e.g., sampling) cannot be fully ruled out. Data were, however, comparable to earlier studies using the SMAP [17, 18, 20], which showed low correlations with a scale assessing socially desirable answer styles [18].

It is assumed that an analysis based on different facets of playfulness could shed further light on the reported relations. This study supports earlier findings on the relation of playfulness with different aspects of quality of life in the elderly by showing that happiness, as well as orientations to happiness, demonstrated positive relations. Even bearing the limitations of a correlational and cross-sectional design in mind, these findings show that playfulness

can contribute to the well-being of adults and elderly adults in particular.

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Acknowledgments. The author is grateful to F. Gander and S. Wellenzohn for their help in the collection of the data and A. Junghans for proofreading the manuscript. The data collection was supported by a grant from the Swiss National Science Foundation (100014_132512).

Compliance with ethical guidelines

Conflict of interest. R.T. Proyer states that there are no conflicts of interest.

All studies on humans described in the present manuscript were carried out with the approval of the responsible ethics committee and in accordance with national law and the Helsinki Declaration of 1975 (in its current, revised form). Informed consent was obtained from all patients included in studies.

References

- Barnett LA (2007) The nature of playfulness in young adults. *Pers Individ Differ* 43:949–958
- Buschor C, Proyer RT, Ruch W (2013) Self- and peer-rated character strengths: how do they relate to satisfaction with life and orientations to happiness? *J Posit Psychol* 8:116–127
- Chick G, Yarnal C, Purrington A (2012) Play and mate preference: testing the signal theory of adult playfulness. *Am J Play* 4:407–440
- Coyne I, Bartram D (2006) ITC guidelines on computer-based and internet-delivered testing. *Int J Testing* 6:115–119
- Crawford SA, Caltabiano NJ (2011) Promoting emotional well-being through the use of humour. *J Posit Psychol* 6:237–252
- Fredrickson BL (2001) The role of positive emotions in positive psychology—the broaden-and-build theory of positive emotions. *Am Psychol* 56:218–226
- Gander F, Proyer RT, Ruch W, Wyss T (in press) Strength-based positive interventions: further evidence on their potential for enhancing well-being and alleviating depression. *J Happiness Stud*
- Glynn MA, Webster J (1992) The adult playfulness scale: an initial assessment. *Psychol Rep* 71:83–103
- Hirsch RD, Junglas K, Konradt B, Jonitz MF (2010) Humorthérapie bei alten Menschen mit einer Depression. *Ergebnisse einer empirischen Untersuchung. Z Gerontol Geriatr* 43:42–52
- Howell RT, Rodzon KS, Kurai M, Sanchez AH (2010) A validation of well-being and happiness surveys for administration via the Internet. *Behav Res Methods* 42:775–784
- McGhee PE (1996) Health, healing and the amuse system: humor as survival training. Kendall/Hunt Publishing Company, Dubuque
- Peterson C, Park N, Seligman MEP (2005) Orientations to happiness and life satisfaction: the full life vs. the empty life. *J Happiness Stud* 6:25–41
- Peterson C, Ruch W, Beermann U et al (2007) Strengths of character, orientations to happiness, and life satisfaction. *J Posit Psychol* 2:149–156
- Peterson C, Seligman MEP (2004) Character strengths and virtues: a handbook and classification. APA, Washington
- Platt T, Ruch W, Proyer RT (2010) A lifetime of the fear of being laughed at. An aged perspective. *Z Gerontol Geriatr* 43:36–41
- Proyer RT (2012) A psycho-linguistic study on adult playfulness: its hierarchical structure and theoretical considerations. *J Adult Dev* 12:141–149
- Proyer RT (2012) Development and initial assessment of a short measure for adult playfulness: the SMAP. *Pers Individ Dif* 53:989–994
- Proyer RT (2012) Examining playfulness in adults: testing its correlates with personality, positive psychological functioning, goal aspirations, and multi-methodically assessed ingenuity. *Psychol Test Assess Modeling* 54:103–127
- Proyer RT (2013) The well-being of playful adults: adult playfulness, subjective well-being, physical well-being, and the pursuit of enjoyable activities. *Eur J Humour Res* 1:84–98
- Proyer RT, Rodden FA (2013) Is the homo ludens cheerful and serious at the same time? An empirical study of Hugo Rahner's notion of Ernstheiterkeit. *Arch Psychol Relig* 35:213–231
- Proyer RT, Ruch W, Müller L (2010) Sense of humor among the elderly: findings with the German version of the SHS. *Z Gerontol Geriatr* 43:19–24
- Qian XL, Yarnal C (2011) The role of playfulness in the leisure stress-coping process among emerging adults: an SEM analysis. *Leisure/Loisir* 35:191–209
- Ruch W, Harzer C, Proyer RT et al (2010) Ways to happiness in German-speaking countries: the adaptation of the German version of the orientations to happiness questionnaire in paper-pencil and internet samples. *Eur J Psychol Assess* 26:227–234
- Ruch W, Proyer RT, Harzer C et al (2010) Adaptation and validation of the German version of the Values in Action Inventory of Strengths (VIA-IS) and the development of a peer-rating form. *J Individ Differ* 31:138–149
- Ruch W, Proyer RT, Weber M (2010) Humor as character strength among the elderly: empirical findings on age-related changes and its contribution to satisfaction with life. *Z Gerontol Geriatr* 43:13–18
- Ruch W, Proyer RT, Weber M (2010) Humor as character strength among the elderly: theoretical considerations. *Z Gerontol Geriatr* 43:8–12
- Seligman MEP (2002) Authentic happiness. Free Press, New York
- Seligman MEP, Steen TA, Park N, Peterson C (2005) Positive psychology progress: empirical validation of interventions. *Am Psychol* 60:410–421
- Yarnal C, Qian XL (2011) Older-adult playfulness: an innovative construct and measurement for healthy aging research. *Am J Play* 4:52–79