Development of the short form of the goal-striving reasons questionnaire

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Abstract

This paper describes the development of the short form of the goal-striving reasons questionnaire. The short form was developed by re-examining data from four previously published studies which employed the long form of the goal-striving reasons questionnaire. Additionally, a further cross-validation study was employed using the short form by itself (N = 125). Overall, the analyses reveal that the short form has equally good internal reliability, construct validity and predictive power with regard to affective and cognitive subjective well-being, work engagement and burnout when compared to the long form. Based on these results, it can be concluded that the short form, which reduces the number of items for each self-reported goal from 16 to eight, does provide a reliable and valid instrument and therefore offers a more parsimonious way to measure the reasons why people pursue their most important goals. Implications, particularly for practice, are discussed.

Keywords: goal-striving reasons framework; short form; subjective well-being, work engagement, burnout.

1. Introduction

Research has conclusively shown that the reasons why people pursue their most important goals is an important contributor to their positive psychological functioning (Carver & Baird, 1998; Deci & Ryan, 2000; Sheldon, Ryan, Deci, & Kasser, 2004). However, with regards to existing theories with which to measure the quality of goal reasons there is very little variety. Most researchers focus on people's self-concordance based on Sheldon and Elliot's (1999) self-concordance theory. Consequently, analysis of the quality of goal-reasons focusses predominantly on the degree to which a person's motivation for goal pursuit emanates from self-choices (autonomous goal reason) or from external pressures (controlled goal reason).

Notwithstanding the importance of self-concordance for people's goal pursuit, it seems unlikely that this is the only relevant dimension with which to measure the quality of goal reasons. Furthermore, focussing exclusively on people's autonomy as the ultimate driver behind people's goals has been criticised by some researchers for underestimating the effects that other people can have on how individuals pursue their goals (Locke & Latham 2013). Thus, it is important to promote alternative theories and frameworks to measure the quality of people's goal reasons with. In this context, an alternative and theoretically different way of measuring the quality of goal reason has been presented in the literature: the goal-striving reasons framework which is operationalised through the goal-striving reasons questionnaire (Ehrlich, 2012; 2018; 2019 Ehrlich & Bipp, 2016).

Theoretically, the goal-striving reasons framework differs from self-concordance theory as it does not draw on the autonomy-controlled dimension but employs two different, albeit very influential conceptualisations within motivational psychology: the approach/avoidance

dimension (Elliot & Sheldon, 1997; Elliot & Thrash, 2010) and the internal/external dimension (Weiner, 1972; Rotter, 1966).

Within the goal-striving reasons framework, the approach/avoidance dimension is hereby conceptualised as the degree to which people pursue their goals for a reason that aims to move towards the achievement of a desirable outcome or to avoid an undesired outcome (Carver & Scheier, 1999). The internal/external dimension draws on a specific categorisation by Ford and Nichols (1987; cf. Austin & Vancouver, 1996; Eccles & Wigfield, 2002; Ford, 1992) which distinguishes between within-person consequences (internal consequences aimed at the person itself) and person-environment reasons (external consequences aimed at changing an external situation; Ehrlich, 2012). In this context it is also important to note that Ford and Nichols' (1987) themselves differentiated between approach and avoidance tendencies within their differentiation between within-person/person-environment goals. This further indicates the suitability of the combination of approach/avoidance reasons with within-person/person/environment reasons.

The approach/avoidance dimension as well as the distinction between within-person/person-environment reasons serves as the theoretical backbone of the goal-striving reasons framework. Furthermore, the combination of the two dimensions allows us to identify one representative reason for each of the four possible combinations that is particularly relevant for people's positive psychological functioning. The four identified reasons are the degree to which people pursue their goals because 1) they enjoy them (approaching/within-person), 2) because they feel their goal-pursuit helps others (approaching/person-environment), 3) because failing in their goal would threaten their self-esteem (avoidance/within-person) or because 4) the goal is necessary to pursue to avoid having insufficient financial means to make a living (avoidance/person-environment).

<Insert figure 1 about here>

Each of these four goal reasons has attracted ample research but has also been linked extensively to people's positive psychological functioning. For example, people's desire to experience pleasure is widely acknowledged as an important driver of human behaviour and therefore a major contributor to people's *subjective well-being (SWB*; Brunstein, 1993; Csikszentmihalyi, 1988; Deci & Ryan, 2000). Equally, pursuing goals for altruistic reasons has been shown to also contribute positively to people's SWB (Batson, Ahmad & Lishner, 2009; Schwartz, Meisenhelder, Ma & Reed, 2003). In particular, the studies around "acts of kindness" have demonstrated the positive benefits of helping others for people's own well-being (Chancellor, Margolis, Bao, & Lyubomirsky, 2018). The desire not to lose a positive view about oneself (self-esteem) is another fundamental driver of individuals that has been acknowledged by many scholars to underpin the goal-pursuit of many individuals (Crocker & Knight, 2005; Ellis, 2005; Judge, Erez, Bono & Thoresen, 2003; Kernis, 2003). Particularly, for individuals who have adopted a conditional view about their self-esteem, the motivation not to fail in a particular goal acts as an important driver to avoid a negative view about oneself (Kernis, 2003; Neff, 2009). However, such a conditional view on self-esteem is widely seen as detrimental to people's overall SWB (Crocker & Park, 2002; Neff, 2009). Finally, with regard to avoiding an unwanted external situation, the desire not to lose essential material wealth is seen as another important driver behind people's reasons for goal pursuit (Austin & Vancouver, 1996; Wicker, Lambert, Richardson & Kahler, 1984). Here people are highly motivated to avoid not having enough financial means to make a (decent) living.

Numerous studies (Ehrlich, 2012; 2018; 2019 Ehrlich & Bipp, 2016) have now provided empirical support for the notion that the more people pursue their goals for the two approaching reasons, in relation to the two avoidance reasons, the higher their self-reported

positive psychological functioning. Positive psychological functioning was hereby measured by a variety of variables such as affective and cognitive SWB (Ehrlich, 2012; 2016, 2019) as well as specific work-related variables like work engagement and burnout (Ehrlich, 2018).

Furthermore, the goal-striving reasons framework has been shown to have higher predictive power in the prediction of those variables representing positive psychological functioning than the most widely used theory to measure the quality of people's goal reasons: the self-concordance model (Sheldon & Elliot, 1999; Vansteenkiste, Elliot, Soenens & Mouratidis, 2014; Ehrlich 2018; 2019)[1]. According to Ehrlich (2019) this is, at least partially, due to the fact that the goal-striving reasons framework is based on the approach/avoidance dimension whereas self-concordance is based on the autonomous/controlled continuum. As a consequence, the goal-striving reasons framework has been shown to be more sensitive to the influence that other people can have on the reasons why people pursue their most important goals[2]. Thus, it can be argued that the goal-striving reasons framework not only offers a different way to measure the quality of reasons compared to self-concordance theory, it also seems that, at times, it can be the stronger predictor of people's positive psychological functioning compared to self-concordance.

However, despite the empirical support for the goal-striving reasons framework, the operationalisation of the framework can be criticised. This is mostly because the questionnaire with which people's goal-striving reasons are measured requires participants to answer a large number of items. In its current form, participants have to answer 16 items to measure the goal-striving reasons for each of their goals. Thus, to measure people's goal

[1] The relative predictive power of goal-striving reasons and self-concordance was hereby tested using hierarchical regression analysis. The results in all studies showed that goal-striving reasons when added to the regression model after self-concordance explained a (significant) higher amount of variance than self-concordance and in most cases rendered self-concordance as not significant.
[2] Ehrlich (2019) argues in this context that the focus on autonomy means that autonomous goal pursuit is conceptualised as a task-inherent characteristic – and therefore the direct influence of others (for example their positive or negative feedback or support is given less emphasis within a measure of autonomous goal pursuit).

reasons based on their four most important goals requires participants to answer 68 items. Therefore, it seems an important advancement to provide a means by which goal-striving reasons can be measured equally well but with fewer items. Against this backdrop, the overall aim of this paper is to develop a short form of the goal-striving reasons questionnaire and to test its internal reliability, its construct validity and its predictive power for variables representing positive psychological functioning. This will be achieved by re-analysing the data of four past studies (Ehrlich, 2012; Ehrlich & Bipp, 2016; Ehrlich, 2018, Ehrlich, 2019) as well as subjecting the newly developed short form of the goal-striving reasons questionnaire to a new sample for the purpose of cross-validation.

2. Reanalysis of existing data on the goal-striving reasons questionnaire

2.1. Methods

2.1.1. Procedure

The procedure was very similar within all four previously published studies that employed the goal-striving reasons questionnaire. Participants were asked to complete a self-administered questionnaire in which they stated either their two, three or four most important, idiosyncratic goals. Participants completed the questionnaire anonymously. In most studies participants were asked to list their most important goals generally – this could include personal as well as work-related goals. However, one study asked specifically for the most important goals at work (Ehrlich, 2018). For each of the stated goals participants were asked to answer a similar set of questions measuring their goal-striving reasons. After answering the questions on goal-striving reasons the participants were then asked to answer questions about particular outcomes variables such as affective SWB, cognitive SWB, work engagement or

burnout. Some participants were financially rewarded and recruited through an external market research institute (Ehrlich, 2018; 2019), whereas other participants were students of the same research institute to which the respective principal investigators belonged at the time of the study (Ehrlich, 2102; Ehrlich & Bipp, 2016). In this case, no financial incentives, or indeed any other form of extrinsic incentive, was offered. In all studies, ethical approval was sought prior to data gathering from the relevant research institutions (Oxford Brookes University Ethics Committee; Ethical commission of the psychology department at the Open University of the Netherlands).

2.1.2. Participants

Participants of the four samples used to generate the short form of the goal-striving reasons questionnaire are rather heterogeneous. They range from Undergraduate students to employees in the voluntary sector. Table 1 gives an overview of the main characteristics of each sample with regard to sample size, number of goals, and nature of idiosyncratic goals, as well as a short description of the sample including age and gender distribution.

<Insert table 1 here >

2.1.3. Development of the goal-striving reasons questionnaire–short form

The decision which items to select for the short form of the goal-striving reasons questionnaire was based on the original data leading to the first publication of the long form as published in Ehrlich (2012). This long form contains 16 items which originally revealed a clear four-factor solution when subjected to a varimax-rotated, principal component analysis as published in Ehrlich (2012; Table 2). The respective eigenvalues for the four factors were

5.32 (33%) for self-esteem, 3.08 (19%) for pleasure, 1.84 (12%) for necessity and 1.40 (9%) for altruism.

<Insert table 2 about here>

Applying the typical criteria for item selection, i.e. factor loadings above .70 on the target factor (Comrey & Lee, 1992) with no substantial cross-loadings (<.20) was not sufficient as all items met these criteria (Table 2). This is why the final selection was based on choosing the two items with the highest factor loading for each factor.[3] In the case of self-esteem, two items had nearly identical factor loadings which is why the item which theoretically was most different from the first item was chosen. After the selection of the eight items, additional factor analyses have been performed for all four studies to see if the clear four-factor is also obtained when only using the selected eight items. The results reveal again a clear four-factor solution for all four datasets (see Table 3) when performing a principal component analysis. When performing the more strict explorative factor analysis using the extraction method of maximum likelihood (Table 4), the results also show a clear four-factor solution with the exception of one item ("I actually enjoy working on this goal quite a lot") which also had cross-loadings on the non-target factor of altruism[4]. This, however, can be explained by the fact that the data set consisted of voluntary workers who quite likely particularly enjoy working on their goals when it is at the same time beneficial to others. Additionally, on three occasions factor loadings dropped below .70 although the average variance extracted over the two items representing one factor was above .70 in all

[3] The rationale for choosing two items to measure each goal-striving reason was because choosing only one item per goal-striving reasons resulted in very low internal reliabilities of the overall goal-striving reasons index below .60.

[4] Both method of factor analyses have employed varimax rotation based on the (theoretical) assumption that the four goal-striving reasons factors are independent of each other. Thus, it is assumed that degree to which people strive for their goals out of pleasure does not predict the extent to which they strive for their goals out of altruism, necessity or self-esteem. However, appendix A and B contain the results of main-component and explorative FA when using direct oblimin rotation. The results are relatively similar to the ones reported when using varimax rotation.

cases apart from the Ehrlich (2019) data whereby the two items representing altruism yielded an average variance extracted of .64.

<Insert table 3 and 4 about here>

Internal reliabilities of the four individual goal-striving reasons based on the short form have also been tested. Here, the average internal reliability across all four studies were all .70 or higher.

<Insert table 5 about here>

Finally, subsequent confirmatory factor analayses (CFA) were performed to further test for the adequacy of the four factor model of the short form. Using the data of Ehrlich (2012) a four factor solution provided an acceptable fit with ($\chi 2$ = 32.584, df =16; P CMIN/DF = 2.162, CFI = .97; RMSEA = .082; SRMSR = .054). Similarly, using the data in Ehrlich and Bipp (2106) yielded an equally good fit ($\chi 2$ = 29.366, df =16; P CMIN/DF = 1.835, CFI = .98; RMSEA = .076; SRMSR = .045). The data in Ehrlich (2018) yielded a slightly worse, but still acceptable, fit with $\chi 2$ = 50.298, df =16; P CMIN/DF = 3.144, CFI = .97; RMSEA = .092; SRMSR = .044 which is also the case for the Ehrlich (2019) data ($\chi 2$ = 37.815, df =16; P CMIN/DF = 2.363, CFI = .95; RMSEA = .099; SRMSR = .072). Overall, these findings lead to conclude that the short form has good construct validity and internal reliability.

2.1.4. Testing the predictive power of the short form

Having established the construct validity and internal reliability of the short form, the final part of the analysis focussed on a comparison of the predictive power of the short and long form when predicting outcome variables relating to people's positive psychological functioning. This analysis was mainly based on the overall *goal-striving reasons* index *(GSRI)* which constitutes an aggregate score over all four individual goal-striving reasons

whereby the strength of the two avoidance reasons (self-esteem, necessity) is subtracted from the two approach reasons (pleasure, altruism). GSRI serves hereby as an overall measure for the quality of people‘s goals-striving reasons. GSRI for the short and long form are hereby created in the same way. The averaged items scores for the two avoidance reasons (self-esteem and necessity) are subtracted from the average scores of the approach reasons (pleasure and altruism)[5]. As in the long form, the short form employed a seven-point Likert scale ranging from 1 (not true at all) to 7 (very true).

To compare the predictive power of the short and the long form for variables representing positive psychological functioning the following outcome variables have been employed: affective and cognitive SWB, work engagement and burnout. The four outcome variables have been measured as follows.

2.1.4.1. Outcome variable: Affective SWB

Affective SWB was measured using the PANAS scale (Watson, Clark, & Tellegen, 1988). Participants have to answer to what extent they experienced each of the listed positive affects (e.g. active, enthusiastic) and each of the listed negative affects (e.g. sad, depressed) within the last month. The answer scale hereby ranges from (1) “very slightly or not at all” to (5) “extremely”. The measurement of positive and negative affect also allows for the calculation of an overall affect measure, 'affect balance', which is generated by subtracting the negative affect scores from the positive affect scores. Affective SWB was used as an outcome variable in Ehrlich (2012; 2019) and Ehrlich & Bipp (2016).

2.1.4.2. Outcome variable: Cognitive SWB

[5] To create such an overall index is hereby following the same procedure used to create an overall self-concordance index (Sheldon & Elliot, 1999).

Cognitive SWB was measured using the Satisfaction with Life Scale (SWLS) by Diener, Emmons, Larsen, and Griffin (1985). The scale consists of five items with strong internal reliability (Diener & Seligman, 2002) and is commonly used to measure overall life satisfaction. Participants need to answer each item on a scale from (1) "strongly disagree" to (7) "strongly agree". Cognitive SWB was used as an outcome variable in Ehrlich (2012; 2019) and Ehrlich & Bipp (2016).

2.1.4.3. Outcome variable: Work engagement

Work engagement was measured using the short form of the Utrecht Work Engagement Scale (UWES). The form is reported to have high internal reliability (Schaufeli & Bakker, 2003). Items are answered on a seven-point Likert scale ranging from 1 (never) to 7 (always; every day). Examples of items featuring are: "At my work, I feel bursting with energy" or "I am immersed in my work". Work engagement was used as an outcome variable in Ehrlich (2018).

2.1.4.4. Outcome variable: Burnout

Burnout was measured using the Shirom-Melamed (2006) burnout measure (SMBM) which is a 14-item measure that conceptualises burnout as an individual's feelings of physical, emotional, and cognitive exhaustion due to the chronic exposure to occupational stress. It is reported to have high internal reliability (Shirom & Melamed, 2006). Participants need to answer the items on a seven-point Likert scale ranging from 1 (never; almost never) to 7 (always; almost always). Examples of items are "I am tired" or "I feel like my batteries are dead". Burnout was used as an outcome variable in Ehrlich (2018).

2.2. Results

2.2.1. Comparison of the descriptive statistics of the long and short form of the goal-striving reasons questionnaire

The descriptive statistics for the long and short form of the goal-striving reasons questionnaire are presented in table 6. The results show that means and standard deviations for the short form were similar to the long form in all four studies for all four individual goal-striving reasons as well as for GSRI. Additionally, internal reliability for GSRI, based on the short form was high ranging from α = .74 to .76 across the four studies. This is slightly lower compared to the internal reliabilities of GSRI based on the long form (ranging from α = .77 to .93) but still above the threshold of .70.

<Insert table 6 about here>

2.2.2. Test for the predictive power of the GSRI based on the short form

The predictive power of the GSRI based on the short form was tested by directly comparing it with the predictive power of the GSRI obtained through the long form when performing similar analyses as conducted in the original studies. In the case of the first study (Ehrlich, 2012) the main results to compare are the correlation coefficients between the two goal-striving reasons indices and affective SWB measures. The results reveal that the short form achieves nearly the same strength of correlation with positive affect (PA) and negative affect (NA) as the long form. More precisely, the GSRI of the short form correlates with PA by r = .16 (p <.05) which is comparable with the correlation reported in Ehrlich (2012) of r = .18 (p <.05) using the long form. Equally the GSRI created through the short form correlates with r = -.21 (p <.01) with NA which is very similar to r = -.22 (p <.01) as reported in Ehrlich (2012) when using the long form. Thus, the short form shows descriptively similar strong correlations with PA and NA than the long form. Moreover, the

correlations coefficients of both GSRIs (short and long form) were equally significant at a 5% level and at a 1% level for PA and NA, respectively.

A similar picture emerges, with regard to the predictive power of the short form when using the Ehrlich and Bipp (2016) data. Here, the descriptive predictive power of both indices are similar for affective as well as cognitive SWB (Table 7). This is further substantiated by the fact that both regressions coefficients for GSRI (short and long form) were significant predictors for affective and cognitive SWB on a 1% level.

<Insert table 7 about here>

When testing the predictive power of the short and long form of the GSRI using the Ehrlich (2019) data, both indices reveal again similar (descriptive) predictive power (Table 7). This is the case for affective as well as cognitive SWB.

Finally, the predictive power of the long and short form has also been compared in the work context when predicting work engagement and burnout of voluntary sector employees (Table 8). The findings, based on multiple regression analysis, reveal that both indices have similar, descriptive predictive power for both outcome variables with equal significance levels ($p < .01$).

<Insert table 8 about here>

2.3. Summary and discussion of the re-analysis of the data

Overall, the findings of the re-analyses of the data from previous studies suggest that the short form of the goal-striving reasons questionnaire provides a more parsimonious questionnaire with which to measure people's goal-striving reasons. This can be concluded because internal reliability indices were consistently high for each of the four scales as well as for the overall goal-striving reasons index based on the short form. Moreover, the principal

component analysis and (to a slightly lesser but still satisfactory extent) the explorative principal component analyses as well as the confirmatory factor analyses revealed a clear four-factor structure. However, particularly the findings around the explorative factor analysis based on the Ehrlich (2018; see Table 4) data indicate that some of the items might at times also produce substantial cross-loadings on non-target factors depending on specific characteristics of the particular sample completing the questionnaire – in the case of the present study, for example, the item "I actually enjoy working on this goal" not only loaded highly on the factor representing pleasure but also on the factor representing altruism. Equally, the item "I strive for this goal because it serves a good cause" yielded the lowest factor loadings of all items and further studies need to provide further clarity whether this items should be retained or replaced by another item.

Finally, based on the findings presented, it can be concluded that the predictive power of the overall goal-striving reasons index based on the short form is also comparable to the long form in predicting outcome variables representing positive psychological functioning. This further supports the notion that people's goal-striving reasons can be measured with the more parsimonious short form of the goal-striving reasons questionnaire.

3. Cross-validation of the goal-striving reasons questionnaire short form

Given that the re-analysis of the data from previous studies was based on data originally gathered with the long form of the goal-striving reasons questionnaire, a subsequent study was needed to cross-validate the findings when using only the items of the short form.

3.1. Methods

3.1.1. Procedure

The procedure employed in the cross-validation study was similar to the procedure described in all four studies used to re-analyse previously existing data. Participants had to complete an online questionnaire based on their four most important work-related goals. Participants also had to answer questions about affective SWB, cognitive SWB, work engagement and burnout. Participants were not financially rewarded as they were all participants of a subsequently offered "Goal-striving reasons training programme". Participants completed the online questionnaire prior to the training.

3.1.2. Participants

The sample (N = 125) consisted of people in work which included being employed as well as being self-employed. 103 people reported being on a full-time contract whereas 20 people had a part-time contract, two people did not answer this question. On average participants had worked for 8.62 years (SD = 8.81) in their current organisation. 50 participants reported having management responsibilities whereas 75 had no such responsibilities. The average age was 47.50 years (SD = 11.50). 83% were female and 17% male.

3.1.3. Measures

The measures employed in the cross-validation study were the same as the measures used in study 1.

3.2. Results

With regard to the descriptive statistics, table 9 shows that the sample overall reported to have stronger approach motivation than avoidance motivation resulting in a positive GSRI. Furthermore, the sample scored relatively highly on all variables representing positive psychological functioning. Equally, internal reliability indices for the overall GSRI as well as the four individual goal-striving reasons were high. The principal component analysis (Table 10) also reveals a clear four-factor solution whereby the eight items explain 91% of variance (34% pleasure, 30% self-esteem, 15% altruism, 12% necessity). A similar picture is obtained when conducting an explorative factor analysis (Table 10) with factor loadings all above .70 and the average variance extracted ranging from .94 to .85 by each pair of items representing one of the four factors[6]. Similarly, a CFA revealed a good fit of the data ($\chi 2$ = 24.617, df =16; P CMIN/DF = 1.539, CFI = .98; RMSEA = .066; SRMSR = .030).

<Insert table 9 here>

<Insert table 10 here>

With regard to the predictive power, the correlative findings show that the overall GSRI correlates significantly with all relevant outcome variables. Furthermore, on an individual goal-striving reasons level, the correlations in table 9 show that the two approach goal-striving reasons correlate most strongly with outcome variables representing positive psychological functioning (PA, work-engagement) whereas the two avoidance driven goal-striving reasons correlate mostly with variables measuring negative psychological functioning (NA, burnout). This is in line with previous research (Ehrlich, 2012, Ehrlich, 2019).

[6] Appendix c contains the comparable results for the principal component analysis as well as the explorative factor analysis when using direct oblimin rotation.

3.3. Discussion about cross-validation study

The findings of the cross-validation study lead to the conclusion that the results based on the re-analyses of the previous studies have been successfully replicated using only the short form. This includes findings on the internal reliability of the four goal-striving reasons, their construct validity based on principal component analysis as well as explorative factor analysis as well as confirmatory factor analysis. Particularly noteworthy are the findings obtained through explorative factor analysis which yielded a clear four-factor structure, with all factor loadings above .70 and no substantial cross-loadings. Equally, the confirmatory factor analysis based on the cross-validation study data also revealed a better data fit than any of the confirmatory factor analyses based on the re-analyses of the data using the long form. Correlation analysis also replicated the findings regarding the predictive power of the four individual goal-striving reasons as well as for GSRI for all measures representing positive psychological functioning.

4. General discussion

Overall, the findings presented in this paper provide reasonably strong evidence for the internal reliability, the construct validity and the predictive power of the short form of the goal-striving reasons questionnaire. The empirical evidence provided is strong as the initial selection of the eight items was based on the first published study in Ehrlich (2012) but could be replicated with regard to internal reliability, construct validity and predictive power when analysing three subsequent data sets as well as employing a separate cross-validation study. Moreover, in all four data sets as well as in the cross-validation study the predictive power of the short form has been equally strong when compared to the long form.

With regard to the external validity of the short form, it is also important to note that the findings of the original studies have been replicated with several heterogeneous samples (Undergraduate students, Postgraduate students, voluntary sector employees, participants of a goal-striving training programme) using a different number of goals ranging from two to four. The predictive power of the goal-striving reasons questionnaire has also been replicated for a variety of outcomes variables such as affective and cognitive SWB as well as work engagement and burnout. Finally, it needs to be mentioned that some studies were conducted on a paper-pencil basis whereas others were done through online surveys, which also did not seem to have any significant impact on the findings reported.

4.1. Limitations

While the study provides support for the reliability and validity of the short form, the findings should be treated with care. Mostly because, in all studies, participation was voluntary which means a self-selection bias cannot not be ruled out due to the fact that participants were not randomly selected. Also, the fact that all samples were female dominated might have influenced the results to an extent. Finally, given that the dependent and independent variables were measured at the same time the findings could have been artificially inflated due to common method variance. Although this cannot be completely ruled out, the Hamman single factor test did not indicate that the results were indeed artificially inflated due to common method variance.

4.2. Implications for practice and future research

Despite these limitations, the findings have important implications, particularly for practice. The successful development of the short form now allows researchers to measure goal-striving reasons in a research context where the measurement of people's goal-striving reasons is based on a large number of goals or where goal-striving reasons are just one measurement amongst many others. Particularly in the latter case, the short form of the goal-striving reasons questionnaire now allows researchers to use the goal-striving reasons questionnaire in more complex research designs, with a multitude of psychological constructs from which additional insights into the interplay of motivation with other aspects of psychological functioning can be gained.

The findings of this study also indicate areas for future research. For example, the question of whether to keep the item "I strive for this goal because it serves a good cause" or to replace it with a different (new) item needs to be investigated further. Based on findings presented around this item, the data suggests that it is worthwhile retaining it – but future studies might also look into the possibility of replacing this item with a new item. Also, additional studies are needed to replicate the findings in other domains (specific occupational sectors, outside work, schools, etc.) but also using other outcome variables such as meaning in life (Steger et al. 2006) for example. Equally, drawing on the notion that the short form now allows researchers to use the goal-striving reasons framework in more complex research designs, the opportunity within future studies to look more closely into antecedents, moderating and mediating factors that can explain for whom and under which particular circumstances people are most likely to develop the best possible goal-striving reasons is now much greater. Finally, the goal-striving reasons framework has recently been extended by another two goal-striving reasons which focus more on the rational consequences of people's goal-strivings (Ehrlich, 2018). Therefore, when more data on the extended goal-striving

reasons framework is available, it will be possible to develop a similar short form for this extended version of the goal-striving reasons framework.

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	Approach	Avoidance
Within-person	**Pleasure**	**Fear of loss of self-esteem**
Person-environment	**Altruism**	**Necessity (for financial bare necessities)**

Figure 1: Goal-striving reasons framework (adapted from Ehrlich & Bipp, 2016)

Table 1: Overview of samples reanalysed

	N	Number of goals	Online / paper-pencil	General goals / work goals	Description of participants
• Ehrlich (2012)	174	2	Paper-pencil	General	British university Business School students who were enrolled in one of two modules which both focussed strongly on issues around personal development. Average age: 26 years, SD = 7.01; 61% female, 39% male.
• Ehrlich & Bipp (2016)	146	3	Paper-pencil	General	146 students all of whom were enrolled in modules with a (business) psychology focus. 72 were recruited from a British Business School and 74 students were recruited from a distance education university in the Netherlands. Average age: 35.35 years; SD = 9.86; 71% female, 29% male.
• Ehrlich (2018)	253	2	Online	Work goals only	Voluntary sector employees in paid employment (no volunteers). Average age: 49 years (SD= 15.31; 54% female and 46% male.
• Ehrlich (2019)	139	4	Online	General goals	139 native English speakers. Average age: 33 years; SD= 9.66; 67% female, 33% male.

Table 2: Factor loadings of the original publication in Ehrlich (2102)

This goal is important to me because ….	Factor 1	Factor 2	Factor 3	Factor 4
If I fail, my reputation amongst other people would drop.	.78	.06	.30	.02
If I fail, my self-esteem would really suffer.	.76	.11	.08	-.02
If I fail, other people would look down on me.	**.81**	-.07	.23	.25
If I fail, I would feel like a loser.	**.83**	-.01	.11	.09
If I fail, I could not look myself into the eyes.	.82	-.02	.08	.18
I am having fun working on this goal.	-.01	**.87**	.07	-.01
I like doing it.	.01	.87	.13	.05
I actually enjoy working on this goal quite a lot.	.01	**.90**	-.01	.18
I get a lot of energy from this goal.	.09	.69	.09	.28

It helps others.	.01	.37	**.77**	.12
It serves a good cause.	.11	.11	**.82**	.18
Other people do benefit from it.	.49	.05	.68	.08
Of the money.	.11	.24	-.05	.74
It is necessary to earn a living.	.24	.11	.12	**.83**
It helps me to make a living.	.22	.01	.10	**.83**
It makes ends meet.	.10	-.06	.30	.79

Note. (N =174). Items in bold were selected for the short form. The items on necessity are avoidance driven because they focus on avoiding a negative situation such as not being able to make a living

Table 3: Principal component analysis of items on the four-facetted goal-striving reasons framework (varimax rotated)

This goal is important to me because ….	Factor 1	Factor 2	Factor 3	Factor 4
I am having fun working on this goal.	.08 (-.05) (.-.01) (.01)	**.93 (.90) (.92) (.90)**	-.04 (-.17) (.14) (-.12)	.04 (.27) (.27) (.24)
I actually enjoy working on this goal quite a lot.	.07 (-.01) (-.01) (.06)	**.90 (.92) (.84) (.91)**	.03 (-.05) (.05) (.01)	.24 (.28) (.47) (.26)
It helps others.	.09 (.05) (-.01) (.28)	.31 (.29) (.44) (.22)	.05 (-.06) (.03) (.19)	**.84 (.86) (.82) (.80)**
It serves a good cause.	.16 (.01) (-.05) (.01)	.01 (.23) (.25) (.04)	.14 (.09) (.08) (-.07)	**.89 (.88) (.91) (.80)**
It is necessary to earn a living	**.90 (.96) (.91) (.85)**	.07 (-.06) (-.04) (-.01)	.19 (.13) .23) (.23)	.14 (.03) (-.08) (.25)
It helps me to make a living	**.92 (.97) (.90) (.91)**	.03 (.01) (.03) (.14)	.16 (.09) (.29) (.16)	.11 (.02) (.03) (.01)
If I fail, I would feel like a loser	.11 (-.01) (.25) (.11)	.06 (-.08) (.12) (-.01)	**.92 (.94) (.88) (.92)**	.02 (.08) (.12) (-.01)
If I fail, other people would look down on me	.25 (.25) (.28) (.30)	-.09 (-.12) (.06) (-.10)	**.84 (.88) (.90) (.81)**	.19 (.08) (-.01) (.21)

Note. First column present the factor loadings based on the data in Ehrlich, 2012; first brackets presented the factor loadings based on the data in Ehrlich & Bipp (2016), the second bracket present the factor loadings based on the data Ehrlich (2018) and the third brackets presents the data on the data of Ehrlich (2019).

Table 4: Explorative factor analysis of items on the four-facetted goal-striving reasons framework (maximum likelihood; varimax rotated)

This goal is important to me because ….	Factor 1	Factor 2	Factor 3	Factor 4
I am having fun working on this goal.		.85 (.84) (.85) (.74)		
I actually enjoy working on this goal quite a lot.		.82 (.89) (.62) (.97)	-. -. (.66). -	
It helps others.				.80 (.96) (.87) (.68)
It serves a good cause.				.70 (.61) (.79) (.60)
It is necessary to earn a living	.73 (.91) (.72) (.95)			
It helps me to make a living	.97 (.97) (.96) (.63)			
If I fail, I would feel like a loser			.99 (.95) (.70) (.73)	
If I fail, other people would look down on me			.60 (.74) (.92) (.76)	

Note. First column present the factor loadings based on the data in Ehrlich, 2012; first brackets presented the factor loadings based on the data in Ehrlich & Bipp (2016), the second bracket present the factor loadings based on the data Ehrlich (2018). In the Ehrlich (2018) data the item I actually enjoyed working on this goal also loaded with .66 on the factor representing altruism. The third brackets presents the data on the data of Ehrlich (2019). Loadings below .50 have been omitted.

Table 5: Descriptive statistics of main study variables for the short form

	Ehrlich (2012) α	Ehrlich & Bipp (2016) α	Ehrlich 2018) α	Ehrlich (20109) α
Pleasure	.84	.91	.91	.88
Altruism	.74	.85	.85	.70
Self-esteem	.86	.84	.84	.81
Necessity	.77	.86	.86	.75

Table 6: Descriptive statistics of the individual goal-striving reasons and GSRI

	Ehrlich (2012)		Ehrlich & Bipp (2016)		Ehrlich (2018)		Ehrlich (2019)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1) GSRI	-.35	2.85	2.43	3.26	5.82	5.51	.60	2.56
	(-.41)	(2.90)	(2.57)	(2.94)	(5.26)	(5.03)	(.61)	(2.24)
2) Pleasure	4.46	1.23	4.89	1.32	5.14	1.33	4.26	1.13
	(4.46)	(1.23)	(4.90)	1.18	(5.11)	(1.24)	(4.27)	(1.06)
3) Altruism	3.62	1.55	3.89	1.36	5.66	1.22	3.72	1.20
	(3.63)	(1.56)	(3.93)	(1.29)	(5.58	(1.19)	(3.73)	(1.11)
4) Self-esteem	3.77	1.46	3.05	1.35	3.57	1.63	3.87	1.17
	(3.75)	(1.57)	(3.25)	(1.19)	(3.73)	(1.51)	(3.88)	(1.00)
5) Necessity	4.68	1.45	3.20	1.46	3.81	1.86	3.50	1.07
	(4.69)	(1.46)	(3.04)	(1.29)	(3.77)	(1.84)	(3.51)	(1.01)

Note. In the first row the descriptive statistics for the short form are presented. For comparison reasons the descriptive statistics for the long form are presented in brackets underneath. GSRI = Goal-striving reason index.

Table 7: Re-analysing the data of Ehrlich and Bipp (2016) and Ehrlich (2019) using multiple regression analysis

	Ehrlich & Bipp (2016)			
Variable	Affective SWB		Cognitive SWB	
	Short form	Long form	Short form	Long form
	β	β	β	β
Age	.05	.03	-.10	-.10
Gender	-.10	-.10	.08	.07
GSRI	.48 **	.53**	.48**	.47**
R^2 *(adjusted*R^2*)*	.26** (.25)**	.30** (.29)**	.20** (.18)**	.18** (.15)**
	Ehrlich (2019)			
Age	.28**	.27**	-.05	-.07
Gender	-.03	-.04	-.09	-.09
GSRI	.47**	.48**	.50**	.47**
R^2 *(adjusted*R^2*)*	.31** (.29)**	.31** (.30)**	.20** (.18)**	.24** (.22)**

Note. *$p < .05$.**$p < .01$. Coding: Gender: Male = 1, Female = 2; GSRI = Goal-striving reason index.

Table 8: Further testing of GSRI short and long based on the Ehrlich (2018) data using multiple regression analysis

Variable	Work engagement		Burnout	
	Short form	Long form	Short form	Long form
	β	β	β	β
Age	-.10	-.10	-.17**	-.17**
Gender	.01	.01	.06	.07
GSRI	.30**	.30**	-.44**	-.44**
R^2 *(adjusted*R^2*)*	08** (.07)**	.08** (.07)**	.28** (.27)**	.28** (.27)**

Note. *$p < .05$.**$p < .01$. Coding: Gender: Male = 1, Female = 2; GSRI = Goal-striving reason index.

Table 9: Descriptive statistics of main study variables

	M	SD	α	1	2	3	4	5	6	7	8	9	10	11
1 GSRI	2.18	2..29	.86		.50**	.39**	-69**	-.64**	.38**	-.41**	.48**	.30*	.30**	-.40**
2 Pleasure	4.67	1.06	.80			.40**	.01	.01	.47**	-.22*	.43**	.38**	.48**	-.43**
3 Altruism	5.23	1.05	.80				.05	.16	.32**	.07	.16	.16	.18*	-.07
4 Self-esteem	3.72	1.48	.90					.41**	-.21*	.39**	-.37**	-.16	-.12	.33**
5 Necessity	3.99	1.44	.86						.03	.31**	-.16	-.04	.01	.08
6 PA	3.40	.79	.92							-.31**	.82**	.55**	.73**	-.62**
7 NA	2.06	.74	.84								-.75**	-.32**	-.30**	.64**
8 Affect Balance	1.25	1.25	n/a									.54**	64**	-.78**
9 Life Satisfaction	4.55	1.34	.89										.54**	-.39**
10Work-Engagement	5.14	1.08	.93											-.58**
11 Burnout	3.09	1.10	.93											

Note. $N = 125$. *$p < .05$. **$p < .01$.

Table 10: Principal component analysis (PCA) and explorative factor analysis (EFA; maximum likelihood) of items on the four-facetted goal-striving reasons framework (varimax rotated)

	Factor 1		Factor 2		Factor 3		Factor 4	
This goal is important to me because ….	PCA	EFA	PCA	EFA	PCA	EFA	PCA	EFA
I am having fun working on this goal.	.96	.91						
I actually enjoy working on this goal quite a lot.	.95	.97						
It helps others.					.90	.98		
It serves a good cause.					.92	.72		
It is necessary to earn a living							.90	.96
It helps me to make a living							.93	.75
If I fail, I would feel like a loser			.92	.82				
If I fail, other people would look down on me			.91	.88				

Note. *N* = 125. Loadings below .50 have been omitted.

Appendix A: Principal component analysis of items on the four-facetted goal-striving reasons framework (direct oblimin rotated)

This goal is important to me because ….	Factor 1	Factor 2	Factor 3	Factor 4
I am having fun working on this goal.		.93 (.95) (.96) (-.93)		-- (--) (.55) (--)
I actually enjoy working on this goal quite a lot.		.91 (.96) (.94) (-.93)		-- (--) (.71) (--)
It helps others.		- (--) (.68) (--)		-.88 (-.91) (.91) (.87)
It serves a good cause.		- (--) (.55) (--)		-.90 (-.91) (.94) (.85)
It is necessary to earn a living	-.93 (.97) (.94) (.90)			
It helps me to make a living	-.93 (.97) (.93) (.92)			
If I fail, I would feel like a loser			.92 (.93) (-.92) (.91)	
If I fail, other people would look down on me			.88 (.90) (-.93) (.86)	

Note. First column present the factor loadings based on the data in Ehrlich, 2012; first brackets presented the factor loadings based on the data in Ehrlich & Bipp (2016), the second bracket present the factor loadings based on the data Ehrlich (2018) and the third brackets presents the data on the data of Ehrlich (2019). Loadings below .55 have been omitted. The reported cross-loadings between the items on pleasure and altruism can be explained by the fact that this particularly sample consisted of voluntary workers (see section 2.3: summary and discussion of re-analysis of the data).

Appendix B: Explorative factor analysis of items on the four-facetted goal-striving reasons framework (maximum likelihood; direct oblimin rotated)

This goal is important to me because ….	Factor 1	Factor 2	Factor 3	Factor 4
I am having fun working on this goal.		.85 (.90) (.99) (-.79)		-- (--) (--) (.57)
I actually enjoy working on this goal quite a lot.		.85 (.93) (.86) (-.99)		-- (--) (--) (.60)
It helps others.				.84 (.99) (.90) (.79)
It serves a good cause.				.73 (.68) (.81) (.71)
It is necessary to earn a living	.76 (.92) (.77) (.99)			
It helps me to make a living	.99 (.97) (.99) (.69)			
If I fail, I would feel like a loser			.99 (.94) (.77) (.74)	
If I fail, other people would look down on me			.67 (.76) (.95) (.81)	

Note. First column present the factor loadings based on the data in Ehrlich, 2012; first brackets presented the factor loadings based on the data in Ehrlich & Bipp (2016), the second bracket present the factor loadings based on the data Ehrlich (2018). The third brackets presents the data on the data of Ehrlich (2019). Loadings below .55 have been omitted.

Appendix C: Principal component analysis (PCA) and explorative factor analysis (EFA; maximum likelihood) of items on the four-facetted goal-striving reasons framework (direct oblimin rotated)

	Factor 1		Factor 2		Factor 3		Factor 4	
This goal is important to me because ….	PCA	EFA	PCA	EFA	PCA	EFA	PCA	EFA
I am having fun working on this goal.	.98	.93						
I actually enjoy working on this goal quite a lot.	.98	.99						
It helps others.					-.93	.99		
It serves a good cause.					-.93	.74		
It is necessary to earn a living							.94	.99
It helps me to make a living							.94	.78
If I fail, I would feel like a loser			.93	.83				
If I fail, other people would look down on me			.94	.91				

Note. *N* = 125. Factor loading of explorative factor analysis (maximum likelihood) are reported in brackets. Loadings below .55 have been omitted.