

12-phase burnout screening

Development, implementation and test theoretical analysis of a burnout screening based on the 12-phase model of Herbert Freudenberger and Gail North

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12-phase burnout screening – development, implementation and test theoretical analysis of a burnout screening based on the 12-phase model of Herbert Freudenberger and Gail North

Aim: The aim of this study was to develop a reliable psychosocial screening instrument based on the 12-phase model of Herbert Freudenberger and Gail North (1992), which can be used during routine preventive medical check-ups and also online.

Method: According to the characterisation of the symptomatology of burnout, ten items were generated for each phase and after primary analyses three items were selected. The screening inventory developed comprising of k=36 items was provided on voluntarily basis to the subjects during medical check-ups at the health and prevention centre in Vienna (period from May 2013 until September 2013) and was filled out by n=1355 participants (69.3% women; 30.7% men). The mean age of the sample was 42.1 ± 10.5 years (Median=44, IQR: 34-50, Minimum=18, Maximum=65).

Results: The screening proved to be objective in performance, analysis and interpretation of the reports and is internally consistent (Cronbach- α =0.937). The discriminatory power of the items is good to very good except for 3 items ($r_{pb} \gg 0.3$). By creation of a total score and the attribution to the individual phases including a graphical feedback, first conclusions with regard to the intensity of stress or the threat of a burnout can be drawn. The first results of validation show substantial correlations with the Hospital Anxiety and Depression Scale and moderate ones with the Personal Lifestyle Questionnaire. A weak correlation with alcohol and nicotine consumption is revealed beginning at phase 3. The 12-phase structure can be confirmed in a LISREL model.

Conclusions: The screening tool developed proves to be a reliable, time-efficient and descriptive tool for the early documentation of potential psychological stress factors. For a revised form a slight modification was carried out for 3 items with low discriminatory power and the presentation of percentile ranks was chosen instead of T-values.

Keywords: stress and burnout – stress model by Herbert Freudenberger and Gail North – depression – anxiety

12-Phasen-Burnout-Screening – Entwicklung, Implementierung und erste testtheoretische Analysen eines Burnout-Screenings basierend auf dem 12-Phasen-Modell von Herbert Freudenberger und Gail North

Ziel: Ziel der gegenständlichen Untersuchung war es, ein reliables psychosoziales Screening Instrument basierend auf dem bekannten 12-Phasen-Modell von Herbert Freudenberger und Gail North (1992) zu entwickeln, welches im Rahmen der Vorsorgeuntersuchung und auch online eingesetzt werden kann.

Kollektiv und Methode: Im Sinne einer Facettenanalyse wurden gemäß der Beschreibung der Symptomatik von Burnout jeweils zehn Items pro Phase generiert wobei dann nach Voranalysen jeweils drei Items ausgewählt wurden. Das so entwickelte Screening-Inventar bestehend aus k=36 Items wurde im Rahmen der Vorsorgeuntersuchung am Gesundheits- und Vorsorgezentrum der KFA Wien im Zeitraum von Mai 2013 bis September 2013 vorgegeben und in diesem Zeitraum von n=1355 berufstätigen KlientInnen (69.3% Frauen; 30.7% Männer) ausgefüllt. Die Stichprobe war im Mittel 42,1±10,5 Jahre alt (Md=44, IQR: 34-50, Min=18, Max=65).

Ergebnisse: Das Screening erweist sich als objektiv in Durchführung, Auswertung und Interpretation und intern konsistent (Cronbach- α =0,937). Die Itemtrennschärfen sind bis auf 3 Items gut bis sehr gut ($r_{pb} \gg 0,3$). Die Bildung eines Gesamtscores sowie die Zuordnung zu den einzelnen Phasen samt grafischer Rückmeldung erlaubt eine erste Einschätzung im Hinblick auf die Stärke der Stressbelastung beziehungsweise Burnout-Gefährdung. Erste Validierungsergebnisse zeigen substantielle Korrelationen mit der Hospital Angst und Depressionsskala (HADS) und moderate Zusammenhänge mit dem Personal Lifestyle Questionnaire (PLQ), insbesondere mit der Subskala Sozialkontakte/Entspannung. Geringe Zusammenhänge mit Alkohol- und Nikotinkonsum zeigen sich erst ab Phase 3. Die 12-Phasen-Struktur lässt sich ebenfalls in einem LISREL-Modell bestätigen.

Schlussfolgerungen: Das entwickelte Screening erweist sich als reliables, zeitökonomisch geeignetes und anschauliches Tool für die frühzeitige Erfassung potentieller psychischer Belastungsfaktoren. Für eine revidierte

Form wurden die wenig trennscharfen Items sprachlichen Modifikationen unterzogen und anstelle der Überführung des rechtsschiefen Gesamtscores in diagnostische T-Werte die Prozentrangdarstellung gewählt.

Schlüsselwörter: Stress und Burnout – 12-Phasen-Modell nach Herbert Freudenberger und Gail North – testtheoretische Analysen – Depression – Angst

Introduction and objective

In recent years, professional ‘burnout’ has awakened public interest and has also received considerable attention from the media and the industry. Weimer and Pöll describe burnout as “[...] a social phenomenon of the modern performance-oriented society [...]” (Weimer & Pöll 2012), which leads to enormous economic costs. A standard diagnostic picture has not been described, but a series of symptoms have been observed. The condition involves a state of physical, psychological, intellectual and social exhaustion (Gabriel 2008). The almost inflationary spread of this term has led to some authors describing a “Burnout Epidemic” (Hillert u. Marwitz 2006). The condition is however associated with lesser stigmatisation as compared to depression and/or anxiety disorders (Litzcke et al. 2013).

The psychoanalyst, Freudenberger (1927-1999), is known to have coined the term - ‘Burnout’. In his first paper, “Staff burnout” (1974), he described the following symptoms which are very frequently documented today – feelings of exertion, tiredness, susceptibility to infections, headache, gastro-intestinal complaints, insomnia, emotional lability, rigid thinking, social withdrawal etc. (Freudenberger 1974).

Maslach (2001) defined burnout as „[...] a psychological syndrome that involves a prolonged response to chronic interpersonal stressors on the job.” He stated three main characteristics: total exhaustion, increasing cynicism and (subjective) ineffectiveness.

Although individual risk factors for burnout have been identified, most studies show that the condition occurs mainly due to work-related factors. However, Maslach points out that always both, personal as well as situational (work-related) factors, must act together to cause a burnout (Maslach 2006). A “Match-Mismatch” between individual and organisational factors has also been discussed in this context (Maslach & Leiter 1997). According to Matthias Burisch (2006), the main cause for burnout is failure to achieve the target and a loss of control for the individual in his/her interaction with the environment.

Diagnosis of Burnout

The differentiation of burnout syndrome from other psychological disorders, particularly from depression and adjustment disorders, is difficult (Kaschka et al. 2011). An appropriate classification in the DSM-IV does not exist. Instead, burnout is listed under 68.20 ‘Occupational problems’. According to the ICD-10, burnout falls under “Z73 – Problems related to life-management difficulty” and specially under “Z73.0- Burnout: State of vital exhaustion” (German Ministry of Health, 2013). A working group of the Finnish Health 2000 Study recommends the inclusion of burnout into the upper category, “Depression spectrum disorders” (Ahola et al. 2005). Nil et al. (2010) states that burnout depicts more of a work psychology concept and not a psychiatric diagnosis, and can therefore often be a cause for depression (Nil et al. 2010). The most frequently used methods are the Maslach Burnout Inventory (MBI; Maslach, et al. 1986) and the Burnout Scales (BOSS; Hagemann & Geuenich 2009). In addition, other methods that are used are: the Shirom Melamed Burnout Questionnaire (SMB; Melamed et al. 1992), the Oldenburg Burnout Inventory (OLBI; Demerouti et Bakker, 2007), the Copenhagen Burnout Inventory (CBI; Kristensen, Borritz et al. 2005) and the School Burnout Inventory (SBI; Salmela-Aro et al. 2009). All these methods function using self-evaluatory items and include questions with respect to the three areas, “emotional exhaustion“, “depersonalisation“ and “personal accomplishment“.

Intention to develop a burnout screening based on the 12-step model of Herbert Freudenberger and Gail North

The early diagnosis of the danger of a burnout during occupational preventive medical check-ups is extremely important because of the high economic costs related to later diagnoses – Schneider and Dreer (2014) estimate these costs to be in the range of €94,000 to €131,000 per case – especially when appropriate work psychology and therapeutic measures can be provided for cases with relevant positive findings. The 12-phase model of Freudenberger and North is suitable for the diagnosis. Firstly, because of its huge awareness and popularity and secondly, due to its clarity - not only to demonstrate their own situation to the ones affected but also to sensitise the senior management to the problem and enable them to design concrete work psychology measures (cf. Gabriel 2010).

However, it must be pointed out that the description of the phases only shows the theoretical model of the course of burnout; these phases need not occur in the same order. The model describes the usual steps ending in burnout syndrome (cf. Fig.1) and thus encourages self-reflection in professional clients. In particular, the question - if burnout is a precursor of depression and therefore the last step of the process - is widely discussed (cf. Ahola et al. 2005; Bakker et al. 2000; Iacovides et al., 2003). The 12-phase model represents a clear model for clients to review their personal and professional orientation, though the last three phases, inner emptiness, depression and burnout (total exhaustion), indicate the critical area for burnout (cf. Fig. 1).

Description of the phases (also see Fig .1)

- **Phase 1: A compulsion to prove oneself** – This phase is characterised by excessive ambition and perfectionism. The employee wants to excel at work with an almost obsessive fear of not giving more than his/her 100% to the job.

- **Phase 2: Working harder** – The feelings from the first phase become exaggerated in this phase. The employee feels compelled to do everything on his own and to complete it urgently. He therefore tries to complete tasks rashly. He also finds it difficult to delegate tasks.
- **Phase 3: Neglecting their needs** – The affected employees perceive this tough situation at work as normal and actually describe it as being comfortable. Social needs are seen as being secondary. In fact, colleagues who pursue their social needs are actually looked down upon. The lifestyle becomes more and more unhealthy and the first small errors start showing up.
- **Phase 4: Displacement of conflicts**– More and more conflicts with colleagues or the spouse, issues like lack of sleep and first physical complaints go unnoticed. Issues like forgetting appointments, accumulating appointments, not showing up on time etc. become more frequent.
- **Phase 5: Revision of values** – There is a change in the way they perceive things. They become insensitive and emotionally blunt, and also tough and calculative. The concept of time is disturbed and only the present is seen. People who were important in their lives earlier now become secondary. The personal horizon becomes narrow.
- **Phase 6: Denial of emerging problems** – The affected individuals start becoming increasingly cynical and bitter, and gradually start cutting off from the outside world. Their behaviour becomes dominated by impatience, intolerance and latent and/or overt aggressiveness. Performance deficits as well as physical complaints become evident.
- **Phase 7: Withdrawal** – Spouse, family and friends are now seen as a burden or even as being hostile. Criticism is not tolerated anymore. The affected persons describe a feeling of loss of orientation and helplessness. In order to feel good, they turn to other means of gratification (vicarious pleasures). They try to work more as required by the rules.
- **Phase 8: Obvious behavioural changes** – Nothing seems to matter to them anymore. Martin Seligman (1975) described them as being apathetic. They now start showing signs of paranoia – everything is seen as an attack. Any additional demand at work is seen as a burden; and they try to evade it.
- **Phase 9: Depersonalisation** – Individuals in this phase describe a loss of contact with the self; they see themselves as machines that (have to) function. They see their lives as being meaningless and inescapable. They start neglecting their own health.
- **Phase 10: Inner emptiness** – In this phase the individual feels completely dejected, blank, useless, exhausted, anxious or panic-stricken. Phobias and panic attacks can occur.
- **Phase 11: Depression** – This stage is characterised by deep despair, self-hatred, exhaustion, the wish of not having to wake up again and suicidal thoughts.
- **Phase 12: Burnout syndrome** – In this phase physical (disease), mental and emotional collapse occur; the situation is an absolute emergency.

Collective and methods

In March 2012, the Health and Prevention Centre of the Hera Sanatorium in Vienna developed a psychosocial screening instrument as an addition to the regular health check-ups on a trial basis (KFA, 2012). This enabled the clients to voluntarily provide information about the following: i) Lifestyle (physical activity, eating habits, social contacts/relaxation, nicotine, alcohol), ii) Burnout, iii) Anxiety and Depression and iv) Additional stress factors. In the case of positive findings, the centre then offered the clients coaching and therapy by a team of psychologists and life coaches – depending on the degree of stress. For this trial, a German version of the Personal Lifestyle Questionnaires (PLQ; Muhlentkamp et al. 1985), questions relating to eating habits from the Personal Health Questionnaire (Löwe et al. 2002), the AUDIT-GMAT (Rumpf et al. 2001) and the Fagerström self-assessment test for nicotine dependence (FTNA; Fagerström, 1978) were used. The topics of anxiety and depression were covered using the Hospital Anxiety and Depression Scales (HADS; Zigmund et Snaith, 1995) and burnout was covered using the Burnout Screening Scale (BOSS-I; Hagemann et Geuenich, 2009). The acceptance by the clients was very high in the time period of the trial, i.e., between 03.2012 and 03.2013 – the screening was filled out by more than 2000 people (Ponocny-Seliger E 2012) – however, qualitative surveys showed that the clients wanted to know the graphical position of the danger of burnout for themselves and also that the clients often oriented themselves to the 12-phase model. The centre also aimed at providing an online version of the psychosocial screening to the clients so as to allow them to assess the situation even before the basic health check-up could be conducted. Therefore, the objective of the present study was to develop a screening instrument that was practical and easy to interpret graphically. The well-known 12-phase model of Freudenberger and North was used as a basis for this.

Generation of items

According to a facet analysis (Borg et al. 1992) based on the description of symptoms similar those found by Freudenberger and North (1992) as well as Rauscher (2009) and Gabriel (2010), ten items were generated for each phase. A total of k=120 items were modified and selected by a team of experts and students and were finally reduced to k=3 items for each phase.

- Phase 1: A compulsion to prove oneself
 - I am often under stress at work.
 - It is important for me to do my work exceptionally well.
 - I feel weird, when I leave work early sometime.

- Phase 2: Working harder
 - I always complete my tasks quickly.
 - I feel guilty, when work is left undone.
 - I often work long hours or do a lot of overtime.
- Phase 3: Neglecting their needs
 - I often feel that my life seems short.
 - I am usually so tired after work and on weekends that I cannot get myself to do anything else
 - Lately I have to put in extra attention to make sure that I do not forget or overlook anything.
- Phase 4: Displacement of conflicts
 - I fall ill more frequently than before.
 - I have trouble falling asleep or I often lie awake at night.
 - I often find it difficult not to talk about work.
- Phase 5: Revision of values
 - I feel considerably more stressed at work than before.
 - I have more frequent conflicts with my colleagues than before.
 - There is more frequent friction within the family.
- Phase 6: Denial of emerging problems
 - I can handle more stress than the others.
 - I often feel that others do not understand me.
 - I have little time for sports or hobbies.
- Phase 7: Withdrawal
 - I rarely meet my friends anymore.
 - I do not really feel happy about anything anymore.
 - I drink alcohol or take medication to relieve my stress.
- Phase 8: Obvious behavioural changes
 - I have to often force myself to find time for friends.
 - I would like to be left alone by others when I am at home.
 - I watch too much television or surf the Internet in order to switch off.
- Phase 9: Depersonalisation
 - My family and friends worry about me.
 - I often push myself beyond my health limits.
 - I function more and more like a machine.
- Phase 10: Inner emptiness
 - I sometimes have a feeling of real panic.
 - Newer challenges at work feel more like an ordeal.
 - I have an unpleasant feeling about work already on the weekend.
- Phase 11: Depression
 - I sometimes have a feeling of emptiness inside.
 - There are days when I feel a sense of total despair.
 - I often want to just lie in bed and sleep.
- Phase 12: Burnout syndrome
 - I often cannot get myself out of bed in the morning.
 - I do not want to go on like this any longer.
 - I just cannot do anything anymore.

The items were presented according to the 6-point Likert scale with the possible alternatives: 1-strongly disagree, 2-disagree, 3-tend to disagree, 4-tend to agree, 5-agree and 6-strongly agree. A neutral mid-point was excluded on purpose in order to stimulate the clients to arrive at a clear positioning.

Test theoretical analyses

The new screening inventory developed was handed out during the preventive health check-up in the above mentioned centres between May 2013 and September 2013 and was filled out by n=1355 professional clients (69.3% women; 30.7% men). The random sample had an average age of 42.1 ± 10.5 years (Median=44, IQR: 34-50, Min=18, Max=65). For further analyses based on the age segments, a division was made along the quartiles, i.e., Age group 1: 18-34, Age group 2: 35-44, Age group 3: 45-50 and Age group 4: 51-65. For the test theoretical analyses, n=164 persons had to be excluded because of unavailability of complete data, reducing the final analytical sample to n=1192.

Results

Internal Consistency

The internal consistency of the k=36 items is as follows: Cronbach- α =0.937, Split-half (1st half vs. 2nd half)=0.849 and as per Split-half reliability (odd-numbered vs. even-numbered items)=0.847 – which is considered very good. When the sample is divided according to sex, comparable values are seen with respect to the internal consistencies (see Table 1). Also in the case of the four age groups, the internal consistency values according to Cronbach- α and Split-

half (odd-numbered vs. even-numbered) are concurrent; in the case of Split-half (1st half vs. 2nd half), the highest age group shows the least values and the age group between 35-44 years shows the highest values. This indicates an age-related response regarding the different phases (also see Table 3). The internal consistencies therefore turn out to be generally stable even across the socio-demographic subgroups.

Analysis of the internal consistencies at the level of the 12th phase shows satisfactory values on an average (Cronbach- $\alpha=0.658$ (Min=0.419, Max=0.858)) despite the small number of items (k=3 items) per phase. The last three phases – “10: Inner emptiness“ ($\alpha=0.778$), “11: Depression“ ($\alpha=0.858$) and “12: Burnout syndrome“ ($\alpha=0.826$) show the highest values and the phases - “1: The compulsion to prove oneself“ ($\alpha=0.488$) and “22: Working harder“ ($\alpha=0.419$) show the lowest values.

Discriminatory power of the items

Analysis showed a low discriminatory power of less than $r_{pb}=0.3$ only for 3 items – namely, item 2: “It is important for me to do my work exceptionally well“ [$r_{pb}=0.189$], item 4: “I always complete my tasks quickly“ [$r_{pb}=0.076$] and item 16: “I can handle more stress than the others“ [$r_{pb}=0.148$], whereas the values for the others were in the good ($r_{pb}=0.3$ to $r_{pb}=0.5$) or very good ($r_{pb}\geq 0.5$) ranges respectively (cf. Fig 2). In the case of comparison between men and women, the discriminatory power was comparable for k=29 items. Women showed higher values for item 5: “I feel guilty, when work is left undone“ and item 9: “Lately I have to put in extra attention to make sure that I do not forget or overlook anything“ Men, on the other hand, showed higher values for item 6: “I often work long hours or do a lot of overtime“, item 13: “I feel considerably more stressed at work than before“, item 14: “I have more frequent conflicts with my colleagues than before“, item 24: “I watch too much television or surf the Internet in order to switch off“ and item 30: “I have an unpleasant feeling about work already on the weekend“. In this way, these items show a gender-sensitive response to stress statements. In the case of the four age groups with k=15 items, age shows no effects on the discriminatory powers. Item 4: “I always complete my tasks quickly“ and item 16: “I can handle more stress than the others“ show low discriminatory power in all the age groups.

Distribution of the responses

The distribution of the response behaviour shows - firstly, that the whole spectrum of the response categories is used up and secondly, that the majority of the items in the higher phases (from phase 5/item 14) show a clear right-skewed distribution. The skewedness is particularly clear in the case of item 2: “It is important for me to do my work exceptionally well“ and item 4: “I always complete my tasks quickly.“ – both show a left-skewed distribution, which means that these items are more agreed upon than disagreed.

Scale scores

The very good internal consistencies allow the calculation of the total score by determining the average, which amounts to 2.27 ± 0.76 (Median=2.11, IQR:1.72-2.63; Min=1, Max=6) for the total sample. The distribution of this total score is clearly right-skewed (cf. Fig 3). In this way a transformation of a diagnostic T-value (Mean=50, SD=10) assuming a normal distribution is only conditionally possible. Therefore, sturdy distribution values of the percentile ranks are needed for a revised version. In addition, average values can also be calculated for the individual phases. The total score does not show any differences with respect to the sexes – women: 2.27 ± 0.76 ; men: 2.25 ± 0.76 , $t=0.583$, $df=1342$, $p=0.560$. But for the individual phases, women show significantly higher values for phase 4: “Displacement of conflicts and needs“, whereas men score significantly higher for phase 5: “Revision of values“ (see Table 2).

In the case of the four age groups, the total score does not show any differences ($F(3.1071)=1.184$, $p=0.315$). Phase 1: “The compulsion to prove oneself“ and phase 2: “Working harder“ show significantly more agreement in the groups 35-44 and 45-50 when compared to the youngest and the oldest groups. In phase 5: “Revision of values“, the youngest group shows significantly lesser agreement and in phase 6: “Denial of problems“, the oldest age group shows the least agreement, followed by the youngest group and the group of 45-50 year olds. The highest agreement is found in the group of 45-50 year olds. In phase 9: “Depersonalisation“ the youngest group shows the least agreement (see Table 3).

Phase mapping and feedback to the clients

The client receives an output that is fully automated using Excel (see Fig. 4). This shows the T-value of the total scores and also a comment whether this lies within the conspicuous area (+, ++, +++). In order to map a client to a particular phase, the individual mean value for that phase is compared with the theoretical distribution value of 3.5 (interval 1 to 6); if this value has been exceeded, the individual is mapped to that phase. The average value of the phase is then documented in the output and a tick mark is placed when the theoretical average has been exceeded. A network diagram is also prepared for graphical demonstration in which the individual scale scores appear as a blue line, the phase maximum as a red rhombus and the theoretical mean as a dotted line (cf. Fig 4). For the purpose of a summative evaluation, the client can then be mapped to the phase with the highest score. This in turn results in a group evaluation. Here, the phases 1-3 are sub summated as ‘normal‘ stress reaction (32.5% of the given sample (g.s.)), the phases 4-6 as phases of increased stress (12.8% (g.s.)), the phases 7-9 (5.2% (g.s.)) as phases indicating the beginning of a burnout and the phases 10 to 12 (13.8% (g.s.)) as specific burnout phases.

First validation results

The psychosocial screenings at the Sanatorium HERA also employ the Hospital Anxiety and Depression Scale (HADS), the Personal Lifestyle Questionnaire (PLQ), the Audit-GMAT and the Fagerström Test. Therefore, these

quantitative scores can be used in terms of a convergent and discriminant validation.

The total score correlates with the anxiety score to $r=0.747$ ($p<0.001$) and with the depression score to $r=0.780$ ($p<0.001$), which in fact shows a strong association in terms of convergent validation, but also suggests that burnout falls under the same system together with anxiety and depression. The phase-scale scores show that phases 1 and 2 have a relatively weak correlation with anxiety and depression. But starting from phase 3: “Neglecting their own needs”, a substantial correlation with anxiety and depression can be seen (see Table 4).

On the basis of the total scores of the PLQ and its subscales (physical activity, eating habits, social contacts/relaxation and health care conduct), consistent negative correlations are seen (cf. Table 5; the more the danger of stress/burnout, the less optimal is the lifestyle) with small to medium effect sizes. In the case of a discriminant validation, the social behaviour correlates stronger with the danger of stress/burnout than the other subscales of the PLQ.

The total score correlates only to $r=0.070$, $p=0.011$ with the AUDIT-GMAT score and to $r=0.175$, $p<0.001$ with the Fagerström score. In the case of the individual phase scores, small effects between alcohol consumption and the danger of stress/burnout present themselves only from 5th phase onwards. In the case of the Fagerström scores, the effects become larger starting from the 3rd phase (see Table 5).

A confirmatory factor analysis (AMOS 19) of the $k=36$ items suggests a Burnout General Factor with a Normed Fit Index of 0.773 (PNFI=0.690; CMIN/DF=9.398) and a Root Mean Square Residual of 0.078. A LISREL model with 12 factors (where it is assumed that each factor requires the next) leads to a Normed Fit Index of 0.840 (PNFI=0.735; CMIN/DF=6.771) and a Root Mean Square Residual of 0.065 and thus proves to be superior as compared to the one factor solution.

Discussion

The 12-phase burnout screening based on the model of Herbert Freudenberger and Gail North (Freudenberger and North 1992) with its $k=36$ items depicts a very time-efficient tool – because the average time required to fill up the form is about 5 minutes at the most. Here, the mapping of the 12 phases is depicted in a graphical manner, which enables comprehensibility for the clients and encourages self-reflection. The test theoretical analysis of the quality criteria certainly includes the objectivity of conducting the process and the evaluation, because the evaluation and the analysis are fully automated using Excel. The online version is also fully automated. With respect to the reliability, the results of the internal consistencies are evaluated as being very good (Cronbach- $\alpha=0.937$) and in the case of the 12 phases, they are considered usable; age and sex have no substantial effects on the internal consistencies. Analyses of the discriminatory powers of the items shows low values (<0.3) for item 2: “It is important for me to do my work exceptionally well”, item 4: “I always complete my tasks quickly” and item 16: “I can handle more stress than the others”. According to this, item 2 and item 4 are perceived – which is also shown by the distribution of the response behaviour – as having a positive connotation, especially by the younger age groups, but these do not necessarily have to depict any stress indicators. Therefore, more emphatic words are chosen for the modification of the screenings, namely for item 2: “It is more important for me than my colleagues to do my work exceptionally” and for item 4: “I always complete my tasks more quickly than the others”; item 16 is left unchanged and is evaluated in a new sample.

The resulting total scale score turns out to be right-skewed, which is only conditionally acceptable with a conversion into a diagnostic T-value. Therefore, for the modified 12-phase screening, a version with percentile ranks with more stable distributions will be developed. The 12-phase screening shows a gender-specific response pattern for some of the items. For example, the confession of ‘feelings of guilt’, ‘mistakes’ and ‘fatigue’ are mapped to a rather feminine answering pattern, whereas, stress due to overtime, stress at work, conflicts and negative thoughts about work on the weekend and alcohol and/or drug abuse are more indicative of the daily realities of men.

The age of the clients also partly moderates the degree of agreement and also the discriminatory power of the individual items – e.g., the question regarding social withdrawal (item 19) is a stronger indicator of stress for the youngest age group than for the other age groups. On the other hand, for the age group of 51-65 year olds, questions about stress at work, mistakes, feelings of panic and the feeling of functioning like a machine are more significant signs of stress. The first results of validation confirm the strong correlations of this instrument with anxiety and depression and moderate correlations with lifestyle – particularly with social contacts and relaxation activities. The correlations with alcohol and nicotine abuse are first seen from the 3rd or the 5th phase onwards, depending on the case. The 12-phase model is approved with an emphatic ‘Fit’ and is even being considered a one factor solution.

Conclusion

The present screening inventory developed to document the personal lifestyle with respect to the psychological risk factors, stress and burnout as well as anxiety and depression was accepted well by the clients during the preventive medical check-up at the health and prevention centre (a little more than 60% of the clients who visited the centre for the medical check-up during this time period took part); however, women and younger clients (<60 years) were more in number in the screening. The results of the study show that psychosocial screening based on the 12-phase model of Herbert Freudenberger and Gail North (Freudenberger and North 1992) proves to be a reliable, time-efficient tool for the early documentation of potential psychological stress factors (time required to fill up the form: 10-15 minutes). In addition, the model, and thereby the screening, have the advantage that they enable efficient communication with the senior management and the human resources department. The current output (see Fig. 4) shows the phases which the

client has already gone through and not just the highest phase reached. In this way, a general objection - that the phases need not necessarily follow the same order of occurrence - is also supported. The next step is a validation study of the modified 12-phase screening - firstly, on the Burnout Scales (BOSS) and the Maslach Burnout Inventory and secondly, using two extreme samples. One sample contains clients who take psychological/psychotherapeutic help to handle stress at work and the second one includes persons who show high values in a Subjective Well-being screening (Ponocny I, et al. 2012).

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Table 1: Internal consistencies according to sex and age groups

	Female	Male	18-34	35-44	45-50	51-65
Cronbach- α	0.937	0.939	0.921	0.948	0.944	0.922
Split-half (1 st half vs. 2 nd half)	0.857	0.833	0.853	0.891	0.848	0.814
Split-half (odd-numbered vs. even-numbered)	0.953	0.944	0.934	0.962	0.952	0.940

Table 2: Phase-scale scores: total and according to sex

	<i>Total</i> (Mean \pm SD)	<i>Female</i> (Mean \pm SD)	<i>Male</i> (Mean \pm SD)	<i>p-value</i>
<i>Phase 1</i>	3.47 \pm 0.92	3.49 \pm 0.91	3.42 \pm 0.93	0.223
<i>Phase 2</i>	3.41 \pm 0.98	3.39 \pm 0.93	3.45 \pm 1.06	0.354
<i>Phase 3</i>	2.59 \pm 1.20	2.62 \pm 1.20	2.50 \pm 1.19	0.086
<i>Phase 4</i>	2.02 \pm 0.99	2.07 \pm 1.02	1.90 \pm 0.90	0.003**
<i>Phase 5</i>	2.16 \pm 1.01	2.12 \pm 1.00	2.24 \pm 1.03	0.045*
<i>Phase 6</i>	2.62 \pm 0.98	2.60 \pm 0.98	2.67 \pm 0.97	0.240
<i>Phase 7</i>	1.81 \pm 0.84	1.78 \pm 0.82	1.87 \pm 0.89	0.102
<i>Phase 8</i>	2.05 \pm 1.02	2.04 \pm 1.02	2.07 \pm 1.02	0.635

Phase 9	1.79±1.00	1.77±0.99	1.81±1.00	0.504
Phase 10	1.67±0.95	1.68±0.96	1.67±0.94	0.805
Phase 11	1.82±1.12	1.85±1.14	1.74±1.05	0.093
Phase 12	1.73±1.07	1.75±1.10	1.67±1.01	0.164

Table 3: Phase-scale scores according to age groups

Mean±SD	18-34	35-44	45-50	51-65	p-value	
Total score	2.20±0.69	2.31±0.74	2.30±0.79	2.25±0.84	0.315	
Phase 1	3.42±0.85	3.58±0.89	3.58±0.97	3.34±1.01	0.005**	(I-IV)-(II-III)
Phase 2	3.32±0.94	3.51±0.90	3.49±1.05	3.29±1.07	0.014*	(I-IV)-(II-III)
Phase 3	2.51±1.15	2.66±1.21	2.67±1.23	2.51±1.22	0.217	
Phase 4	1.95±0.90	1.99±0.93	1.97±0.96	2.10±1.11	0.306	
Phase 5	1.94±0.92	2.21±1.00	2.27±1.00	2.21±1.09	<0.001***	I-(II, III, IV)
Phase 6	2.54±0.94	2.77±0.93	2.62±1.00	2.51±0.98	0.007**	IV-(I;III)-II
Phase 7	1.75±0.82	1.88±0.78	1.83±0.85	1.78±0.88	0.284	
Phase 8	2.02±0.91	2.06±0.96	2.14±1.06	2.00±1.12	0.417	
Phase 9	1.65±0.90	1.86±1.02	1.84±0.99	1.85±1.13	0.048*	I-(II, III, IV)
Phase 10	1.56±0.79	1.68±0.91	1.77±1.03	1.73±1.08	0.057	
Phase 11	1.87±1.07	1.83±1.15	1.80±1.13	1.77±1.10	0.768	
Phase 12	1.75±0.93	1.77±1.12	1.63±1.05	1.74±1.14	0.446	

Table 4: Correlation of the phase-scale scores with the Hospital Anxiety and Depression Scale and the PLQ

	HADS-A	HADS-D	PLQ- Total	PLQ- Physical activity	PLQ- Eating habits	PLQ-Social contacts	PLQ-Health
Total	0.747	0.780	-0.469	-0.311	-0.299	-0.436	-0.227
Phase 1	0.414	0.355	-0.265	-0.159	-0.137	-0.250	-0.119
Phase 2	0.297	0.273	-0.208	-0.096	-0.126	-0.223	-0.053
Phase 3	0.612	0.648	-0.431	-0.314	-0.240	-0.401	-0.220
Phase 4	0.608	0.572	-0.372	-0.278	-0.227	-0.344	-0.164
Phase 5	0.486	0.517	-0.322	-0.166	-0.154	-0.310	-0.168

Phase 6	0.442	0.458	-0.360	-0.274	-0.232	-0.334	-0.137
Phase 7	0.598	0.694	-0.408	-0.248	-0.178	-0.390	-0.238
Phase 8	0.564	0.654	-0.388	-0.267	-0.254	-0.313	-0.236
Phase 9	0.640	0.664	-0.398	-0.223	-0.280	-0.370	-0.205
Phase 10	0.671	0.650	-0.323	-0.219	-0.202	-0.287	-0.171
Phase 11	0.675	0.773	-0.398	-0.289	-0.156	-0.339	-0.236
Phase 12	0.646	0.715	-0.393	-0.286	-0.245	-0.337	-0.212

All correlations with $p < 0.001$ are significant because of the size of the sample

Table 5: Correlation of the phase-scale scores with the AUDIT-GMAT and the Fagerström Score

	AUDIT-GMAT	Fagerström Score
Phase 1	0.011	0.066**
Phase 2	0.056*	0.093*
Phase 3	0.010	0.113***
Phase 4	0.039	0.137***
Phase 5	0.057*	0.094**
Phase 6	0.076**	0.132***
Phase 7	0.165***	0.134***
Phase 8	0.081**	0.179***
Phase 9	0.066*	0.153***
Phase 10	0.093**	0.111***
Phase 11	0.083**	0.180***
Phase 12	0.085**	0.161***

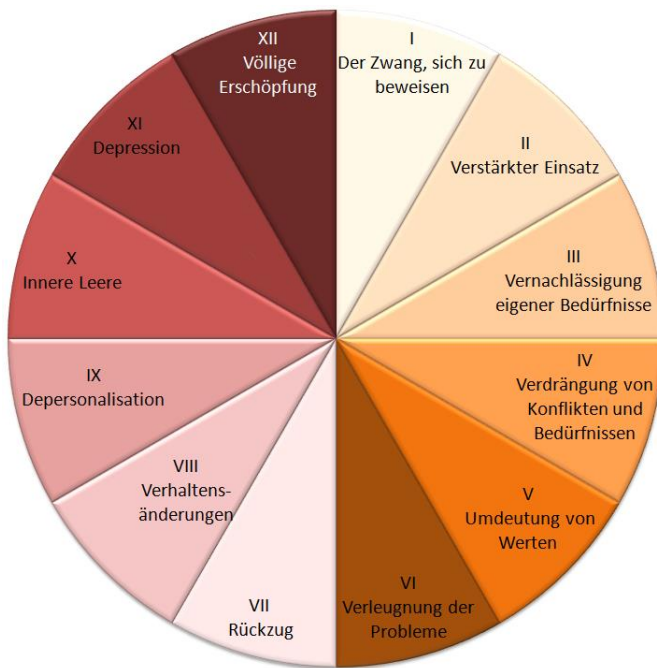


Fig.1: 12-phase model of Herbert Freudenberger and Gail North (1992). The 12 phases are depicted in the abbreviated form; see text for more details (Source: Coaching, Empirical Social Research and Gender Research, 2013)

- The compulsion to prove oneself
- Working harder
- Neglecting their own needs
- Displacement of conflicts and needs
- Revision of values
- Denial of problems
- Withdrawal
- Obvious behavioural changes
- Depersonalisation
- Inner emptiness
- Depression
- Burnout syndrome

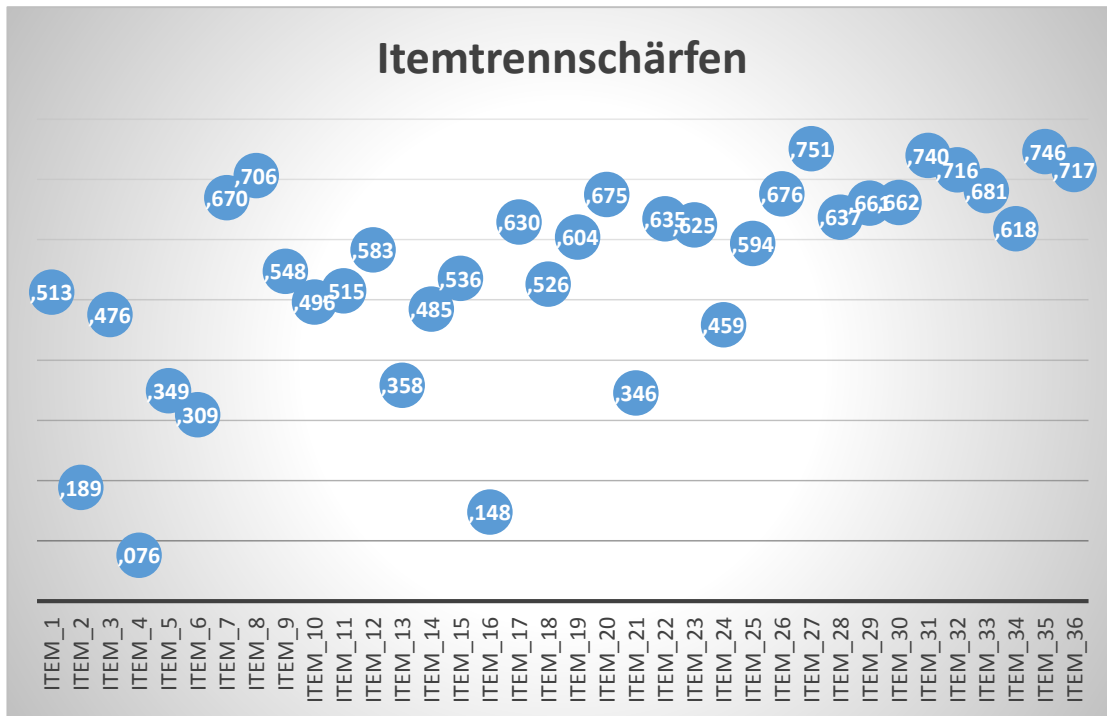


Fig. 2: Discriminatory power of the items, k=36 items (Source: Gender Research, 2013)

Discriminatory power of the items

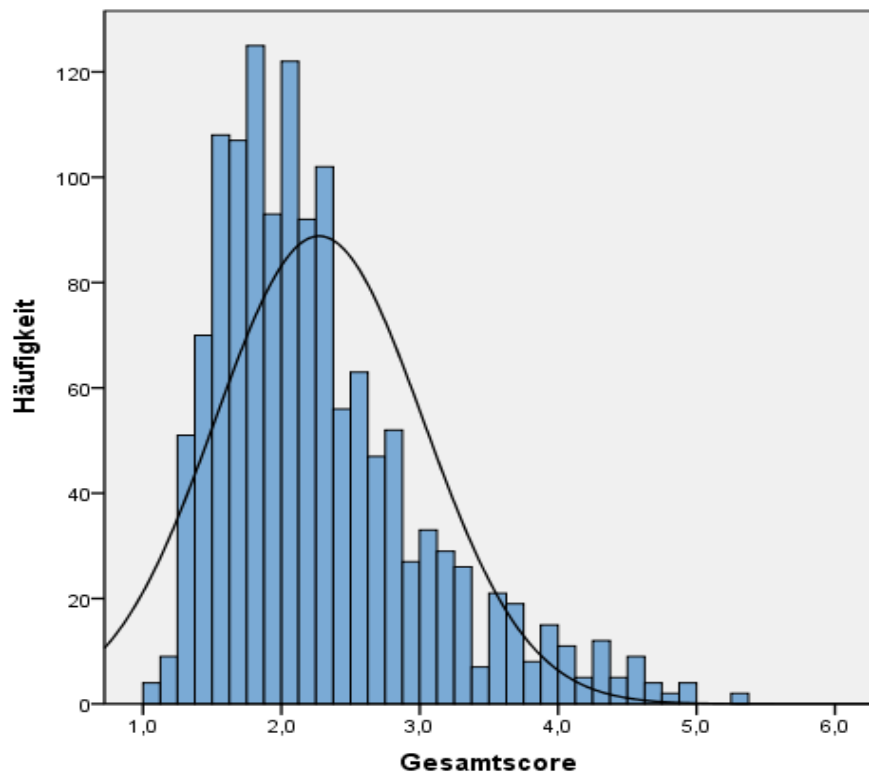


Fig. 3: Distribution of total scores

Frequency
Total score

Stress & Burnout		Score		Maximum
Gesamtwert		70,6	++	
S1: Zwang sich zu beweisen		5,3	✓	6
S2: Verstärkter Einsatz		5,0	✓	6
S3: Vernachlässigung eigener Bedürfnisse		4,3	✓	6
S4: Verdrängung von Konflikten & Bedürfnissen		2,7		4
S5: Umdeutung von Werten		4,0	✓	6
S6: Verleugnung von Problemen		4,3	✓	5
S7: Rückzug		3,7	✓	6
S8: Verhaltensänderungen		2,7		3
S9: Verlust des Gefühls für eigene Persönlichkeit		3,3		4
S10: Innere Leere		4,0	✓	5
S11: Depression		3,0		3
S12: Burnout-Erschöpfung		4,3	✓	5

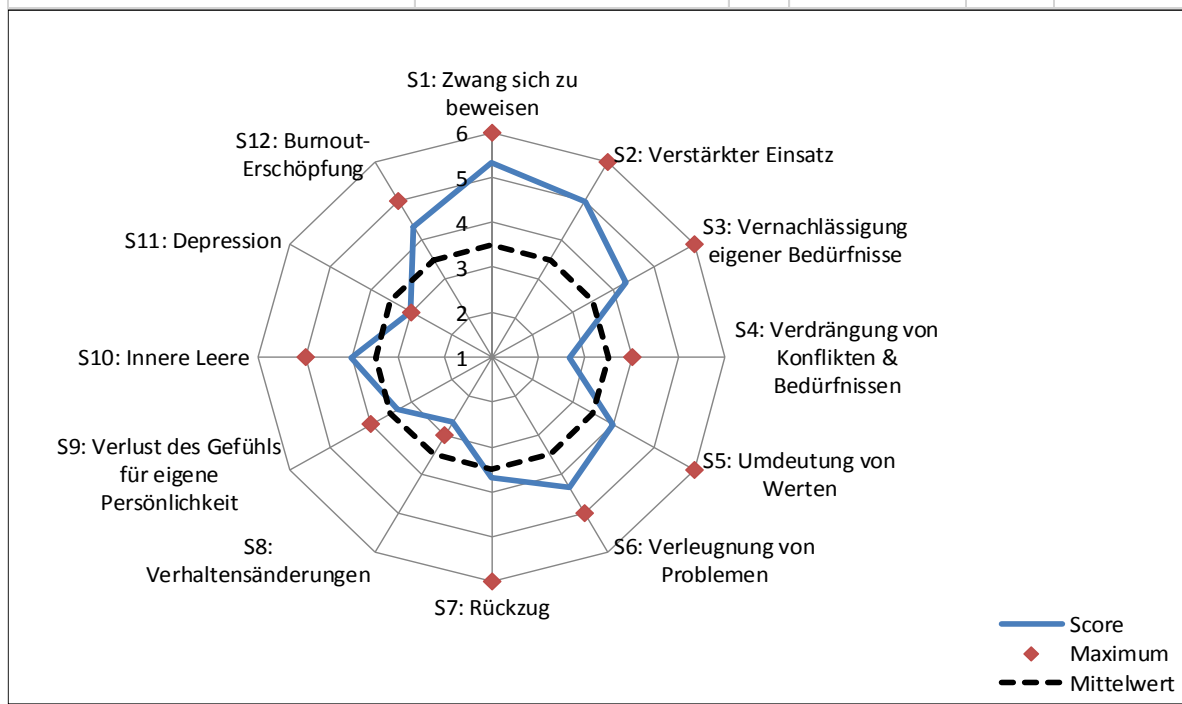


Fig. 4: Screening feedback to the clients

- Total score
 S1 The compulsion to prove oneself
 S2 Working harder
 S3 Neglecting their own needs
 S4 Displacement of conflicts and needs
 S5 Revision of values
 S6 Denial of problems
 S7 Withdrawal
 S8 Obvious behavioural changes
 S9 Depersonalisation
 S10 Loss of contact with self
 S11 Depression
 S12 Burnout – exhaustion

Score
 Maximum
 Mean value