

Development and Validation of Schadenfreude Scale in Employees

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The present study has two objectives: To develop a self-report scale that can be used in the workplace to measure schadenfreude and establish its validity and reliability. The study employs a sequential exploratory research design which was divided into three sub-studies; the first study was qualitative; Themes were extracted from a sample of N = 15 by semi-structured interview. Thematic analysis was used, and seventeen themes were identified, for instance negative emotions, unhealthy environment, bad event association, deficiency motive, deservedness, social hierarchy, and humiliation. The study proceeded further by quantitative approach, which was used in further sub-studies. In Study II, the Item pool was generated and refined. A total of 20 items were finalized for the schadenfreude scale with two subscales (Complacency and Vengeance) with varimax rotation (EFA). In addition, CFA findings show acceptable fit indices i.e., GFI = .90, CFI = .97, and RMSEA = .06. The reliability of the newly developed scale was satisfactory i.e. $\alpha = .95$. In addition, convergent validity has been computed by the AVE method, and the discriminant validity by Pearson correlation analysis. Further implications of the study were discussed.

Keywords: Schadenfreude; scale development, psychometrics, employees¹

Introduction

Schadenfreude is a mixture of positive and negative emotions, as it contains a feeling of internal satisfaction toward other people in their suffering (Cecconi et al., 2020). The emotion is considered negative as it is against the humanistic approach of positive regard; however, it is a

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positive emotion because of the feeling of inner happiness to the person feeling it (Ahmed & Bashir, 2017; Cecconi et al., 2020). The term was originated from Germany, in 1740; it is referred to as harm, injury or damage (i.e. Schaden), another part is referred to as joy (i.e. Freude). Therefore, Schadenfreude means "Happiness in harm" or "harm joy." It was introduced in the English language in 1852, while firstly scripted in text in the year 1895 (Van Dijk & Ouwerkerk, 2014).

As per the word Schadenfreude, there is a feeling of inner satisfaction and pleasure; however, the negative consequence of the individual has been associated with the feeling of shame and guilt. However, studies have affirmed that schadenfreude is contrary to sympathy. The emotion of schadenfreude is seen high among dark personality traits, and guilty inhibiting personality traits, i.e., narcissism, psychopathy, and Machiavellianism (Lindebaum et al., 2018; Van Dijk & Ouwerkerk. 2014). Further, theoretical perspective could highlight the mechanism behind this phenomenon.

Schadenfreude is rooted in Festinger's Social Comparison Theory (FSCT). According to the theory, individuals tend to compare their capability and abilities to others, and they also desire to have similar traits in the intention of being liked by their peers. They would adapt to the belief and situation of what they believe others would want from them. The theory focuses on an individual being high on social comparison. The person high on this trait desires to be accepted by other people and doubts their capabilities by comparing them to their peers. Thus, the individual feels joy when other people whom they consider to be better than them are in a state of bad or experiencing misfortune (Festinger, 1954).

Literature review on schadenfreude showed that this trait has been regarded as negative (unhealthy), and could harm social welfare (Heider, 1958; Van Dijk & Ouwerkerk, 2014). Moreover, there has been a lack of supportive literature on schadenfreude's definition (Hanif & Batool, 2021). On the other hand, the said problem was occurred due to contextual understanding (i.e. German to English translation). However, the terms envy, resentment and anger seems similar in meaning, and thus might be confusing for many researchers in this field. In addition, it was observed from the literature review that this measure is not available for Pakistani employees, but extensive study was done on adolescents in collectivist culture (Hanif & Batool, 2021). Moreover, it was observed that employee productivity is crucial for better society and economic development, and

schadenfreude could be an obstacle. Therefore, the present research proposed a cultural specific measure to assess the schadenfreude in employees.

Following literature on schadenfreude highlighted the importance of this perspective in employees. Private sector individuals who feel more envious against their peers was associated with being successful in terms of salary increment, job promotion, and professional growth at the workplaces (Dijk & Ouwkerk, 2014). On the other hand, self-control is inversely associated with success (Ahmed & Bashir, 2017). Schadenfreude is associated with multiple emotions, having the same neurological activities as sympathy, but having an inverse relationship. It has been linked to emotions of malicious envy, justice, rivalry for merit, and personal gain (Cecconi et al., 2020). Moreover, the cross-cultural findings on schadenfreude showed that collectivists and individualistic culture experienced it in a different way (Leach et al., 2003). For example, in Pakistani cultural context some unique factors like joint family system, dependence (share system), and religious activities affect the negative phenomena different as compared to Western culture (e.g., Triandis, 2001). In contrast, there was a lack of research done regarding schadenfreude in Government sector employees, but much of the attention was given to the private sector employees.

Schadenfreude emerged from the social comparison, and was seen as a common emotion in work places. It is a negative trait that affects our healthy life (Heider, 1958). It is evident from literature that there has been lack of research done on schadenfreude in employees, particularly in Pakistani cultural context (e.g., Asim et al., 2020; Hanif & Batool, 2021). Previously, the quantitative approach has been used where researchers used envy scales (Vecchio, 2005), subjective career success scale (Shockley et al., 2016), self-control scale (Tangney et al., 2004), and thriving at work scale (Porath et al., 2012) to measure the constructs, and it was not directly assessed. Therefore, the following objectives were given for the present study.

Objectives of the study

The main objectives of the study were:

1. To conceptualized the schadenfreude construct
2. To develop an empirical based schadenfreude scale

3. To establish the reliability and validity of the newly developed scale

Methods

The sequential exploratory mixed-mode method of scale development design was employed and three sub-studies are proposed for attaining the objectives of the study.

Study I: The Conceptualization of Schadenfreude Construct

In study one qualitative approach was utilized; The first sample was consisted of N =15 employees, with with an age range of 18 to 38 years (Men = 8, Women = 7), and they have experience of six months or more in an organization (public or private). Study I was divided into two phases, where the interviews were conducted in phase I. Initially, an interview protocol was designed based on previous theories and literature (Smith, 2015). The interview was a semi-structured and open-ended question in nature (for instance, how do you define schadenfreude in workplace? and how do employees express the schadenfreude in your organization?).

The participants were selected by the convenient sampling technique, and it has been suitable technique when participants are readily available at their workplace, and no hard rules for participation was required (Edgar & Manz, 2017). They were briefed about the study purpose, process, and implications. They were assured of their own, and their organization's confidentiality. Verbal consent was taken from the participants to record their interviews. The interview took an average time of 20 to 30 minutes. In-depth information was obtained by the technique of probing and summarizing. The interview ended with an open to suggestion question regarding the topic. The Interview was later transcribed. The phase II of the study comprised of thematic analysis. At this phase coding was done for meaningful data from the interviews.

The final themes were extracted (seventeen), which were considered to be schadenfreude factors. The themes were: Belief in God, deficiency motive, human nature, lack of autonomy, need of achievement, need of appreciation, bad event associate, social hierarchy, need for realization, implicit bias, physical appearance, unhealthy environment, humiliation, deservedness, positive emotions, negative emotions, and mixed emotions (see Discussion for further details).

Study II: Development of Schadenfreude Scale

This study was further divided into three phases, in phase, I, an initial item pool of 129 items was generated based on the themes generated. This pool was evaluated under expert opinion, and problematic items were discarded. The expert rated each item as “Essential, Useful, and Not Useful”. After eliminating and refining items, by the end of phase I, the item pool was consisted of 88 items. The pilot study has been done in Phase II of the study II; it followed all the standards criteria used in the main study. The sample size of $N = 105$ (Men = 54, Women = 49) with an age range of 18 to 38 ($M = 26.02$, $SD = 5.851$) with convenience sampling technique.

The questionnaire was designed into two sections: Section I included consent taking of participants and briefing them about the study; Section II contained the 88 items of schadenfreude. This was measured on a 5-point Likert scale where 5 = strongly agree to 1 = strongly disagree. In addition, item total correlation (item screening) was computed, and cut-off value $r = .50$ was decided to retain the items. And eighty-two items were selected for further analysis.

In phase III, validity of the newly developed scale was assessed. The sample of $N = 432$ (Men = 287 and Women = 145) of age group of 18 to 38 years ($M = 29.44$, $SD = 9.06$) was considered. The sample was selected by convenient sampling technique. In addition, a sample of 250 participants with similar demographics was used to run the CFA (see Table 2). IBM SPSS version 26 was used for the analysis. Exploratory Factor Analysis has been utilized to establish the construct validity of the scale. Measures

Study 3: Reliability and Validity of the Schadenfreude Scale

The final Study of this research focused on the evaluation of the reliability and validity of the scale. In addition, Empathy Questionnaire by Spreng et al. (2009) has been utilized to establish the discrimination validity. The scale contained 16 items, and was measured on a 5-point scale where 0 as “Never” to 4 as “Always.” The scale had Cronbach alpha of .84. IBM SPSS version 26 was used to assess the discriminant validity by Pearson’s correlations, and reliability by Cronbach Alpha, AVE method was used for convergent and discriminant validity.

Results

First of all assumptions are fulfilled to run the EFA. Initially, data errors were eliminated before data analyses (e.g., typo error and missing values). Kaiser-Meyer-Olkin test was computed to check the sampling adequacy, which was satisfactory i.e. .96. Bartlett’s Test of Sphericity has

been computed, and findings showed satisfactory results i.e. $\chi^2 (190, n = 432) = 7208.28, p < .001$, and sample adequacy was satisfactory. According to Nunnally (1994), item strength is considered by the item-total correlation, the item-total correlation less than .50 is considered as weak. The cutoff score for this study was set to be $\geq .50$.

Similarly, communalities cut off was set to be $\geq .50$, and items were eliminated based on this criteria (Field, 2013). The final 62 items were entered in EFA, with a sample of 432. Varimax rotation was utilized along with the principal axis factor, and the final solution generated two factors (here discarded the misfit items). The criteria for Eigen value was greater than 1 in the present study. Therefore, keeping in view the guidelines of Kaiser, the unnecessary items were deleted, and EFA performed repeatedly until the satisfactory solution has been obtained (e.g., Broen et al., 2015).

The two factors were formed by the varimax rotation approach. In addition, the factors were labeled according to the characteristics of the items (themes). The result of the 20-item factor loadings has been shown in Table 1 on two subscales. The factor loadings score was greater than and equal to .50 in each sub-scale. The final themes of the scale are Complacency and Vengeance.

Table 1:

Factor Loadings for Schadenfreude Scale (N = 432)

Item	Complacency	Vengeance	h^2
Item.8	.85	.19	.76
Item.19	.78	.27	.68
Item.15	.77	.32	.69
Item.12	.77	.34	.71
Item.7	.76	.26	.64
Item.27	.75	.36	.69
Item.16	.74	.32	.66
Item.9	.74	.30	.63
Item.6	.72	.25	.59

Item.28	.72	.37	.65
Item.20	.70	.42	.67
Item.2	.66	.32	.53
Item.78	.21	.82	.71
Item.79	.24	.77	.66
Item.70	.21	.75	.60
Item.80	.36	.74	.68
Item.82	.32	.72	.62
Item.68	.38	.68	.60
Item.60	.33	.66	.55
Item.77	.36	.64	.55

Note. Factor loadings greater than .60 are in bold. Orthogonal with varimax rotation was utilized. $h^2 = \text{communality}$

Factor-1 (Complacency)

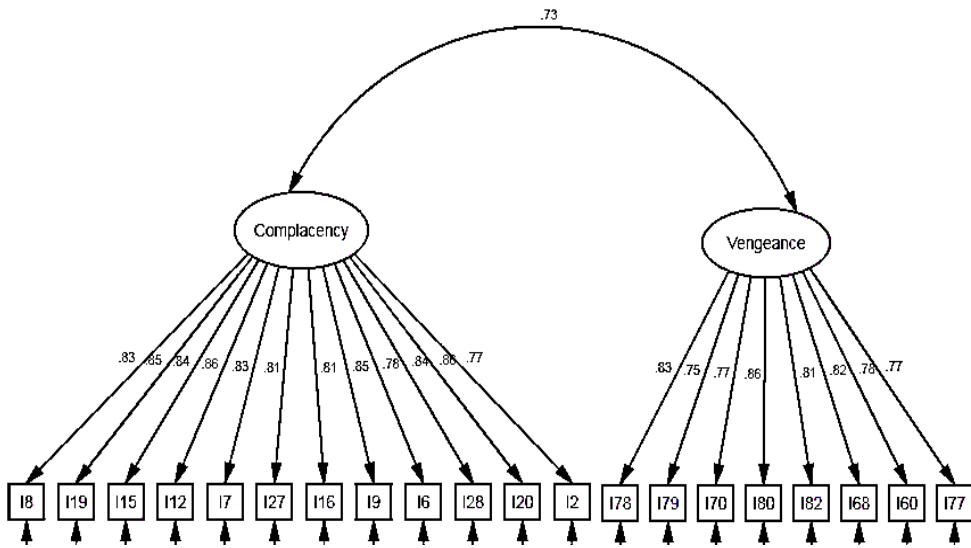
This factor had 12 items. The items were 8, 19, 15, 12, 7, 27, 16, 9, 6, 28, 20, and 2 with the loadings of .84, .77, .77, .77, .75, .74, .74, .73, .72, .71, .70 and .65 respectively. This factor has been labeled as “complacency”. It had a variance of 56.87%.

Factor-2 (Vengeance)

This factor had 8 items. The items were 78, 79, 70, 80, 82, 68, 60 and with the loadings of .81, .77, .74, .73, .71, .67, .66, and .64 respectively. This factor has been labeled as “Vengeance”. It had a variance of 10.90%.

Figure 1

CFA on Schadenfreude Scale (N = 250)



Note. Standardized factor loadings of the CFA on the Schadenfreude Scale. The findings reflect that they are in the acceptable range (i.e. greater than .30).

To confirm the factorial structure of the 20-item scale, Confirmatory factor analysis was used. Results showed an acceptable model fit that is, GFI, CFI is greater than .90, RMSEA was .06, and chi-square test was significant. In addition, modification indices were used to improve the model.

Table 2

Schadenfreude Scale's Fit Indices (N=250)

Indexes	χ^2	df	p	RMSEA	GFI	CFI	χ^2/df
Model	285.3	160	.00	.06	.90	.97	1.78

Note. χ^2 = chi-square, CFI and GFI = comparative and goodness of fit index

Study 3: The Psychometric Properties of the Scale (i.e. Reliability)

The final 20 items of schadenfreude scale was used to check the psychometric characteristics (e.g., Alpha coefficient, Mean and Standard deviation), and the discriminant validity was evaluated by an additional

questionnaire to measure empathy (Toronto Empathy Questionnaire; Spreng et al., 2009).

Table 3

Psychometric Properties of the Study Scales (N = 432)

Scale	<i>k</i>	<i>M(SD)</i>	Score Range	α
Schadenfreude Scale total	20	35.90 (16)	20.0 - 100.0	.95
Complacency	12	18.54 (10)	12.0 - 60.0	.95
Vengeance	8	17.40 (8)	8.0- 40.0	.92
Empathy	16	42.54 (9)	20.0- 63.0	.76

Note. *k* = no. of items. α = Cronbach's alpha

Table 3 shows the mean, standard deviation, Cronbach's alpha. The result of, Cronbach's alpha showed excellent reliability of the 20-item Schadenfreude Scale, and its subscales (ranging from .92 to .95). Additionally, the empathy scale (TEQ) Cronbach's alpha was good.

Table 4

Discriminant Validity and Convergent Validity (N = 432)

<i>Construct</i>	AVG	$\sqrt{\text{AVG}}$	1	2	3	4
Schadenfreude	.54	.73	-	.93**	.90**	-.18**
Complacency	.56	.75		-	.68**	-.23**
Vengeance	.52	.72			-	-.08
Empathy	-	-				-

Note: *** $p < .001$

The Average Variance Extracted (AVE) method has been utilized to assess the convergent and discriminant validity of the newly developed scale (Cheung & Wang, 2017). The results of AVE scored in the range of .50 to 1.0, which is acceptable for validating the scale's convergent validity. For the discriminant validity, Pearson correlation was assessed with the TEQ scale. The Result in Table 4 shows a negatively significant association of the TEF scale with scale of schadenfreude and subscale-complacency, and confirming the discriminant validity. Yet, no significant correlation has been found between TEQ and subscale-vengeance. In addition, the results also indicated a positive correlation between the schadenfreude and its subscales.

Discussion

The primary goal of this research is to develop a scale that could assess the schadenfreude perception in an organizational settings, and to determine the validity of newly developed scale. Therefore, the research design is comprised of three studies; the stepwise assessment is carried out to develop and establish the psychometric properties of the schadenfreude scale.

Study one used a qualitative approach to investigate the schadenfreude construct, and conducted into two phases; an interview protocol has been designed. The interviews are transcribed and analyzed. The Phase II of this study included thematic analysis. This provided us with the final refined theme of 17 matching schadenfreude traits. The themes are: belief in God, deficiency motive, human nature, lack of autonomy, need of achievement, need of appreciation, bad event associate, social hierarchy, and need of realization, implicit bias, physical appearance, unhealthy environment, humiliation, deservedness, positive emotion, negative emotion, and mixed emotion.

Study I has fulfilled the first objective of this research by identifying the factors of the emotion of schadenfreude. Study II focuses on developing the scale on the basis of factor analysis (i.e. second objective). In addition, study I is conducted in three phases. In phase I, the initial item pool is developed, with the rule of having 5 to 8 items generated under each factor, resulting in an initial item pool consisting of 129 items (Braun et al., 2019). In phase II, the Items are reviewed by the experts (i.e. can evaluate the items and had knowledge in the field of psychology). This

process ensures the content validity of the items (Sireci, 1998). The experts are provided a data sheet containing related definitions and literature. As a result of the expert validation, 41 items are eliminated, and 12 items are refined. Subsequently, the final count of 88 items are retained. Phase III consisted of a pilot study. This aimed to evaluate the understanding of items in the general population of organizational setting (Johanson & Brooks, 2010). The six conflicting items were eliminated at this stage.

In Study II, 62 items are further evaluated on exploratory factor analysis (EFA), where 18 items are eliminated according to communality criteria (i.e. $< .50$) (Field, 2013). The 44 items are loaded with the cut-off score of $.50$; items below the cut-off score are eliminated, ensuring the final 20-item scale (Floyd & Widaman, 1995). The Final solution provided two factors. For instance, "I am glad he/she is losing his/her reputation" or "I am contended to see him/her penalizing." The term best suited for the factor was complacency; as per the Merriam-Webster dictionary (2020), complacency is a state of feeling joy and inner satisfaction deprived of any precise cause or thinking of the outcome of the occurrence. According to Loxterkamp (2019), complex emotion, i.e., schadenfreude and complacency, could be similar in the feeling of the emotion with rationalizing its consequence. Thus, the factor was terms as complacency.

The second cluster is found to be associated with a conditioned attached. This condition is more likely to a similar past event they have faced with either the person or place, e.g., "I like knowing the management who exploited me are now at their bad." or "it feels joy in the bad situation of him/her who laughed at my bad situation." The term best suited for the factor is vengeance; as per the Merriam-Webster dictionary (2020), vengeance is referred as a forfeit inflicted in terms of getting payback for a past antecedent; this is considered a rightful emotion in case of prejudice. The vengeance factor represents a negative emotion against others, associating it to the trauma they have suffered from. The desire to get vengeance is a common attribute of schadenfreude's emotion (Sawada & Hayama, 2012; Seip et al., 2014). Thus, this factor has been labeled as vengeance. The newly developed schadenfreude scale has unique and different factors (e.g., population, work settings, age range, perception, and number of factors) as compared to Hanif and Batool's scale.

The third objective has been achieved by establishing its validity and reliability. In addition, discriminant and convergent validity are also established. According to Morgado et al. (2017), scale's validity is

questionable if it lacks the convergent and discriminant validity. To ensure schadenfreude is authenticated, Cronbach alpha reliability has been computed, showing the coefficient of .95 for the full Scale, while .95 and .92 of its subscales (i.e., complacency and vengeance) respectively (Gliem & Gliem, 2003). The present study findings show that the scale has excellent reliability, and is developed exactly for Pakistani workplace culture

The correlation analysis is conducted to identify its convergent validity (Morgado et al., 2017), whereas average variance extraction (AVE) method, and correlation is utilized to establish discriminant validity. The AVE approach is suitable for within-comparison, and could be useful for cross-checking discriminant validity (Fornell & Larcker, 1981). Moreover, the present research used an empathy scale to assess the discriminant validity. The discriminant validity was satisfactory as findings show that there is a negative correlation between empathy and newly developed schadenfreude measure; (Black, 2018; Dijk & Ouwerkerk, 2014). The AVE method is utilized, which is advised to identify the convergent validity, i.e. comparable to correlation between similar constructs. The cut-off for convergent validity in AVE is .50, and for discriminant validity the root square of AVE could be greater than the AVE indices (Fornell & Larcker, 1981). The result of the AVE method analysis showed a significant convergent and discriminant validity of the schadenfreude scale (Jalalani et al., 2019). In addition, the structure validity of the schadenfreude is established with CFA, and findings suggest that the factor structure is appropriate as indicated by the model fit indices and factor loadings (e.g., Hanif & Batool, 2021).

Limitation and Suggestion

Even though the result of the study has been satisfactory, room for improvement can always be made. Firstly, the research has been conducted in 2020-2021, where the COVID-19 pandemic is an immense obstacle in the research. It is suggested to take a larger sample for a clear picture in future studies. Moreover, providing reassurance of its reliability. Similarly, the findings could be cross checked in a controlled environment, and thus eliminating confounding variables. Additionally, the diversity of the sample could help in the generalization of the results. The social desirability might have played a role in the participant scoring. The comparison of Govt. and private sectors can be assessed in future studies regarding the schadenfreude construct.

Conclusion

The present study has developed a reliable and valid schadenfreude scale for employees in Pakistani culture. The study included a qualitative approach of interviewing and thematic analysis, and identified the construct related themes. These helped develop the initial pool, which is further optimized by expert review, pilot study, total item correlation (item screening), exploratory factor analysis, and CFA. The final schadenfreude scale is consisted of 20-items, and two subscales Complacency (12 items) and vengeance (8 items). Moreover, the discriminant and Convergent validity confirmed the scale measures the emotion of schadenfreude, and the satisfactory Cronbach alpha value exhibited its internal consistency.

Implications

The present study provide evidence that the scale of schadenfreude is reliable and valid in workplace settings. This scale measured the perception of schadenfreude. This could be a beneficial measurement to increase the organization's productivity by recognizing the negative emotion, and addressing them, and eliminating the emotion over an intervention management plan.

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