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Article:	**Development and Validation of Schadenfreude Scale for Adolescents**
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Abstract

The present study is based on the development of scale to measure schadenfreude in adolescents. The objectives of the study are twofold i.e., the development of an indigenous scale to measure schadenfreude among adolescents and to establish the validity of this scale. To achieve these goals, study comprised of two phases. Item pool was generated on the basis of literature as well as content analysis of the information obtained through focus groups and it was finalized through committee approach. Factor structure of the scale was determined by conducting Exploratory Factor Analysis (*N*=330). In Phase-II, psychometric properties of the scale were established by conducting Confirmatory Factor Analysis on an independent sample (*N*=320). Descriptive statistics, alpha reliabilities and item total correlations were computed. The final scale comprised of 28 statements with six domains included Rivalry, Negative Emotions, Unfairness, Worthlessness, Comparison Bias, and Helplessness. It is a measure schadenfreude among adolescents.

Keywords: Adolescence, Schadenfreude, EFA, CFA

Introduction

Schadenfreude etymology traces back to German language, "schaden" meaning damage and "freude" meaning joy, means one's joy or pleasure for another damage or demise. Typically, deeds of schadenfreude does not care about ethics and desire others downfall in order to raise himself. Mostly it is considered as malevolent joy or mean pleasure and enjoying a bit of pleasure when another person goes through a hostile event (Heider, 1958). For example, a person may feel happy on a mistake being made by his colleague in a presentation at work. Schadenfreude is a delight experienced on someone else's failure, setback, or not achieving the desired goal or outcome.

According to Leach, Spears, Branscombe, and Doosje (2003) schadenfreude is a passive emotion and feelings of schadenfreude only appears when the misfortune of another is caused by a third party; so it is about having pleasure but not being part of the reason why someone happens to experience the misfortune. In this respect schadenfreude is an emotion experienced from the side-lines as a passive bystander, distinguishing it from the most active emotion of gloating, which results from the defeating or bettering the rival directly. Schadenfreude is about seeing other's suffer, not making them to suffer (Van Dijk, Ouwerkerk, Goslinga, Nieweg, & Galluci, 2006). Leach et al. (2003) has described schadenfreude as something opportunistic. The in-group enjoys the opportunity when misfortune of the out-group occurs.

Heider (1958) is of the view that schadenfreude is wicked because pleasure is a "discordant" reaction to another's adversity. It is opposite to the "concordant" reaction of sympathy, and forms an antagonistic relationship to the unfortunate other. Due to which, Heider considers schadenfreude as damaging to social relations.

While studying the literature on schadenfreude emotion, there is lack of comprehensive definition of it. The difficulty of efficiently translate and meanings of the original German word into English creates a problem. Certain researchers are of the view that Schadenfreude is anticipated exclusively by certain emotions (e.g. anger, dislike, envy, or resentment) without recognizing that most of them overlap. Therefore, the English terms describing Schadenfreude are not definite and various explanations are possible. For example, Schadenfreude is sometimes labelled as "pleasure at the suffering of another," but at the same time, the term "pleasure at the misfortune of another" is used. Although the difference between the descriptions may not be great, the minor dissimilarity between "suffering" and "misfortune" proposes a difference in degree of harshness of the unfortunate event befalling the judged individual. The term "suffering" points to that pleasure, which is aroused by the negative emotional responses (such as anguish) of the judged, whereas pleasure at the "misfortune" suggests that a negative event occurring to another individual is sufficient to evoke a pleasurable response? Schadenfreude is not sadism: the calamity should not be extremely harsh or damaging, as pleasure towards these events would seem likely indicate psychopathology (van Dijk et al., 2005).

Prior researches show that there are cross-cultural differences in experiencing schadenfreude (Leach et al., 2003). Likewise, there are vast differences in western individualistic and Asian collectivist cultures. Collectivist societies are far-off different from individualistic societies with respect to their traditions, culture, norms, values, beliefs, ideals, social standards, and life style (Hui & Triandis, 1986; Triandis et al., 1990). Family system, family bonding, cohesive peer relationships, and joint family system are the best examples of collectivistic society (Tiedens & Leach, 2004). In collectivistic culture compared to individualistic culture, people more interact with one another and often observe the successes and failures of others (Triandis, 2001). A vast variety of research on schadenfreude has been done in western countries i.e. the individualist societies. Few researches have been conducted in Asian collectivistic culture and no research work has

been done in Pakistan. Therefore, the present research is an attempt to explore the existence of schadenfreude in Pakistan, a collectivist culture. For this purpose, the development of a valid instrument is essential which can measure schadenfreude among Pakistani adolescents.

Schadenfreude is most prevalent in adolescents as it is a very critical phase of life in which many problems emerges. In adolescence, schadenfreude might evolve into other destructive behaviours, such as failing to assist someone in need, pleasure on other's failure etc. (Ben-Ze'ev, 2000; Heider, 1958). This age has its significance in term that adolescence is such a period in which young people are in the midst of a process of restructuring social relationships, of finding their place in society, and of making important choices for their future lives (The Association for Professionals in Services for Adolescents, 2008). Therefore, it is need of the day to study adolescents' negative emotion i.e. schadenfreude. For this purpose, it is essential to develop a reliable and valid instrument through which schadenfreude can be measured in adolescents.

A major challenge has been in the measurement of schadenfreude. Schadenfreude has been measured and assessed through a variety of instruments and techniques. In the existing literature, instruments used single words, not sentences, to measure schadenfreude (Leach, Spears, Branscombe, & Doosje, 2003; Leach & Spears, 2008; Shaver, 1985) used four items to assess schadenfreude. These items were joyful responses to the target's trouble (happy, joyful, satisfied, glad; measured on a 9-point rating scale, with 1=not at all to 9=extremely). Some researchers used positive negative affect scales (PANAS) for the assessments of schadenfreude. Respondents were asked to indicate on seven-point scales (where 1 = not at all and 7 = extremely) the degree to which they felt positive (happy, cheerful, delighted, joyful, pleased, good) and negative (sad, regretful, low, guilty, uneasy, bad) affect (Leach et al., 2003, Leach, Lyer, & Pederson, 2006). Facial electromyography (EMG) (Cikara & Fiske, 2011) and fMRI (Singer, 2006) has also been used to measure schadenfreude. Pre-epilogue and Post-epilogue mood scale were also used to assess schadenfreude (Brigham et al., 2010). Van Dijk (2008) has developed a comprehensive instrument to measure schadenfreude. It consists of five item and is seven-point rating scale ranging from 1=strongly disagree to 7=strongly agree.

The major lacking in the all above-mentioned instruments and techniques is that these instruments measure only state schadenfreude. Yet, there is not a single instrument available which measure the tendency of schadenfreude in adolescents. As per scholarly knowledge is concerned, there is no comprehensive measure developed on the phenomenon of Schadenfreude, so there is great need to develop and validate a comprehensive scale on schadenfreude in our culture. So, the present study aimed at to develop a valid indigenous instrument which measure the adolescents' tendency to feel schadenfreude.

Method

The present research was based on development and validation of the scale to measure schadenfreude among adolescents. Schadenfreude is a sort of pleasure that individuals feels on the sufferings of others. The present research was based on two phases i.e., development of an indigenous scale and its validation.

Objectives

1. To develop an indigenous scale for measuring schadenfreude among adolescents.
2. To test the psychometric properties of the scale (i.e., reliability and validity).

Phase-I: Development of the Items

Phase-I was based on the item development process for the scale measuring schadenfreude among adolescents as well as the determination of factor structure of the scale. Literature on the schadenfreude acknowledges that there are numerous conditions when individuals feel pleasure over others misfortunes. For this purpose, extensive literature review was carried out in order to understand the nature and major attributes of the

schadenfreude faced by the educated adolescents. Phase-I was completed in the following steps:

Step-I: Identification of the dimensions of schadenfreude. In the first step, empirically consistent dimensions of schadenfreude were identified by carefully reviewing the available theoretical and empirical literature regarding schadenfreude. The objective was to identify the role of different conditions in eliciting feelings of schadenfreude. In the existing literature, available instrument measure only state schadenfreude (vanDijk, 2008) and some instruments used single words, not sentences, to measure schadenfreude (Leach, et al., 2003; Leach & Spears (2008). With the help of the review of the existing literature, different domains (conditions) were extracted over which individual feels pleasure on the sufferings of others. Past research on schadenfreude and its correlates indicates that multiple factors contribute to the feelings of schadenfreude among diverse samples and the most prominent factors contributing to schadenfreude are Comparison (Brigham et al., 1997; Freethey, 2006); Competition (Cuddy, Fiske, & Glick, 2007); Conflict (Smith & Kim, 2007); Negative feelings and emotions (McNamee, 2007); Anger (Hareli & Weiner, 2002); Disliking (Hareli & Weiner, 2002); Hatred and Disgust (Hareli & Weiner, 2002; Cikara & Fiske, 2011); Injustice (Feather, 2008; Smith, 2000), Jealousy (Parrott, 1991); Rivalry (van Dijk, et al., 2009 Feather & Sherman, 2002); Revenge (Nietzsche, 1967); Perceived inferiority (Leach and Spears, 2008); Perceived Responsibility and Deservingness (van Dijk, et al., 2005; Feather, 2008) and Perceived threat (van Dijk, et al., 2009; van Dijk, et al., 2011).

Step-II: Focus group discussions. In the second step, after identifying the literature based broad classifications of schadenfreude, the focus group guideline was prepared. A total of seven focus groups were conducted with adolescents including both males and females. The size of each group ranged from 7-11 participants and the discussion usually lasted from 1 and a half to 2 hours. Only educated adolescents were included in the focus groups. Students were included from both natural and social sciences and had different socio-economic background. The participants were from Graduation, MSc, M.Phil and PhD level. The age range of the participants was 22-35 years. All the participants were included in the group discussion after taking their verbal consent.

The results of focus groups showed that schadenfreude is an emotion that is inbuilt in humans. It is opposite of empathy. It exists universally and all individuals experience the schadenfreude at some point in life regardless of culture. These feelings are manifested on individual as well as on group level. Individuals vary in their tendency to feel schadenfreude. Rivalry, hatred, dislike, injustice, comparison, jealousy etc. are the most prominent factors of schadenfreude. It is situational in nature but some individuals have a dispositional in nature. It has both positive as well as negative aspects. It is adaptive as well as dysfunctional in nature for the individual and the society. It exist in every ground of life like family, education, workplace, business, politics, religion, sports etc.

At the end of the focus group discussions, content analysis was made. For this purpose, maximum coding categories were generated on the basis of the literature. The recording of the focus group discussions carefully listened again and again to fit in the answer of the participants in the predetermined categories. Moreover, the new concept from each focus group was taken to generate more coding categories. The maximum frequency of response on each category was taken as a criteria for selection of items in the item pool. As a result of content analysis of focus group information twelve categories emerged that are competition, rivalry, comparison, jealousy, conflict, deservingness, helplessness, perceived threat, negative feelings, inferiority feelings, revenge, and perceived gain. Later on, after taking a deep review these twelve categories were reduced to six.

Step-III: Items writing and the selection of rating scale. In the third step, initial items pool was generated on two bases including (a) the extensive literature review on schadenfreude and (b) the insights obtained from the focus groups. On the basis of the review of the literature on schadenfreude and the dimensions of schadenfreude obtained in the step-I, the items were documented. Secondly, the information obtained from the focus groups was content analysed and one the basis of the content analysis, items were written. The number of statements in the measure under each category was as follows: Rivalry (8 statements), Negative Attitude (3 statements), Injustice (5 statements), Deservingness (4 statements), Comparison (9 statements), and Perceived Helplessness (6 statements). A form was prepared by putting all these statements in the list under above mentioned categories. At the end of the procedure, 35 statements were retained in the form. Items was in the form of opinion statements that was rated on a five point Likert type scale. The response categories in the rating scale include 1 for 'Never', 2 for 'Rare', 3 for 'Sometimes', 4 for 'Often', and 5 for 'Always'. In the end of the step-III, a scale was finalized in its initial form

Step-IV: Selection of the items through committee approach. In the fourth step, after generating the items, a committee approach was held for the final selection of the items. The committee was comprised of three experts having PhD psychology and two from MPhil psychology. Thus with the assistance of the experts, all the redundant, misleading, and doubled-barrel items was discorded from the scale. Some items were rephrased, modified, and merged. The final decision regarding the selection of the items was made in the light of the suggestions of the committee. Only those items were retained that was truly reflecting the underlying construct of schadenfreude. Thus, a final scale consisting of 33 items was ready for psychometric evaluation. In this step, the experts also reviewed the categories' names and gave their suggestions regarding categories. Their suggestions were incorporated. The number of items under each category was as follows: Rivalry (8 items), Negative Emotions (3 items), Unfairness (4 items), Worthlessness (4 items), Comparison Bias (9 items), and Helplessness (5 items).

Step-V: Determination of factor structure through EFA.

Sample. To determine the factor structure of the scale, the scale was administered on the participant for data collection. Participants were comprised of educated adolescents (N = 330) including male (n = 166, 50.3%) and female students (n =164, 49.7%). The participants were selected from different public and private sector universities of Punjab and federal capital Islamabad. Participants were the students of Intermediate, Graduation, MSc, and M-Phil. They were from various disciplines of natural and social sciences. The age range of the participants was 15-24.

Results. Phase-I of the present research was based on development of a scale to measure schadenfreude and to determine the factor structure of this scale. For testing the dimensionality of the Schadenfreude Scale, the 33 items of the scale were factor analysed through Exploratory Factor Analysis. First exploratory factor analysis was carried out but the results of rotation did not produce a meaningful solution of the items of the scale. To get a clear factor solution of 33 items of Schadenfreude Scale different rotations were obtained and factor number was taken open based on Eigen values.

Before factor analysis, Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and 'Bartlett Test of Sphericity' were computed to check the suitability of the data for factor analysis. Results show that KMO measure is .90 indicating that the data is suitable for factor analysis. Bartlerr's test of sphericity is also significant at .001 and the variables are positively correlated with each other.

Item total correlations was also computed on the 33 items which showed that all the items correlated significantly with each other and with the total score of the scale with a range of .30 to .73. According to Guertin and Baily (1970) if all the items are highly

correlated with each other and with the total score, 'Direct Oblimin Method' of Principal Component Analysis is a best method to be applied thus, Direct Oblimin Method was used.

Table 1

Factor Loadings for Exploratory Factor Analysis

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
SF31	**.85**	.02	.07	.00	.01	-.05	.01
SF32	**.83**	.00	-.04	.09	-.04	-.01	-.02
SF33	**.77**	-.01	-.06	.06	-.00	.01	.05
SF2	**.77**	-.01	.02	.05	.17	.09	-.02
SF27	**.73**	-.04	.04	.10	-.01	-.02	.02
SF19	**.70**	-.00	.16	.01	-.09	.08	.09
SF17	**.69**	-.02	.10	.05	.01	-.12	.10
SF29	**.65**	-.15	.07	.13	.02	.08	.06
SF11	-.05	**.82**	.16	.07	.04	.17	-.18
SF9	.00	**.63**	-.13	.02	.04	-.18	.09
SF13	-.09	**.55**	-.12	-.01	.01	.01	.28
SF18	-.04	.34	.27	.02	.01	-.21	.25
SF24	.05	-.01	**.75**	.14	.09	-.08	.02
SF25	.15	-.00	**.70**	.12	-.01	-.07	.02
SF5	.36	.08	**.51**	-.15	.06	.09	-.11
SF28	.08	-.23	**.44**	.17	-.02	16	.26
SF26	.05	.05	.15	**.77**	-.04	-.06	-.12
SF16	-.01	.02	.04	**.71**	-.09	-.01	.15
SF30	.29	.06	-.15	**.64**	.00	.17	-.02
SF22	.10	-.02	.06	**.62**	.21	-.07	-.04
SF1	-.02	-.13	.06	-.03	**.85**	-.01	.09
SF4	-.01	.29	.04	.06	**.68**	.01	-.06
SF3	.24	-.00	-.25	-.00	**.50**	-.27	-.15
SF23	-.11	.04	.24	.15	.16	**-.54**	.10
SF21	.22	-.00	-.03	.02	.10	**-.51**	.28
SF10	-.03	.02	.11	.04	.29	.30	**.38**
SF14	-.05	-.08	-.00	.15	.10	-.05	**.69**
SF20	.16	.00	.11	-.06	-.07	-.18	**.61**
SF15	.16	.20	-.00	.05	-.08	-.02	**.60**
SF12	.25	.23	.05	-.13	.12	.20	**.49**
SF6	.01	-.05	-.01	-.00	**.83**	.11	.08
SF8	.08	.25	-.04	.15	**.56**	-.17	-.02
SF7	.08	.18	.103	-.12	**.54**	.41	-.04

Table 1 shows factor loadings of 33 items for the Schadenfreude Scale based on .35 factor loadings. The loadings were obtained by running Principal Component Analysis to determine the factor structure of the scale. For the final selection of the scale, the items with a factor-loading equal to or greater than .35 were considered. Thus, the items with less than .35 factor loadings or the items or variables that correlate very highly with other variables were eliminated.

Consequently, on the basis of .35 criteria of factor analysis 30 items were retained in Schadenfreude Scale. These 30 items were scattered in six dimensions i.e., Rivalry (8 items), Negative Emotions (3 items), Unfairness (4 items), Worthlessness (4 items), Comparison Bias (6 items), and Helplessness (5 items). Two items were scattered in Factor VI but these items contains negative values and were not measuring the same dimension. So, this factor was excluded and was not retained.

Eigenvalues were calculated to have an understanding that how many factors would be extracted from the result of factor analysis. Researchers generally use different criteria to estimate the number of factors for the given items. The widely known approaches were recommended by Kaiser (1958) and Cattell (1966) on the basis of eigenvalues which can help to determine the importance of a particular factor and to indicate the amount of variance in the items accounted for by that particular factor.

Table 2

Eigenvalues, Percentage of variance and Cumulative Percentage of Variance for Seven Factors (N=330)

Factors	Initial Eigenvalues	% Variance	Cumulative % Variance
Factor 1	9.69	29.359	29.36
Factor 2	3.09	9.357	38.72
Factor 3	1.65	5.000	43.72
Factor 4	1.58	4.777	48.49
Factor 5	1.37	4.136	52.63
Factor 6	1.15	3.494	56.12
Factor 7	1.03	3.132	59.26

Table 2 demonstrates the eigenvalues and percentages of variance explained by seven factors. Factor 1 has an eigenvalue of 9.69 and explained 29.36 % of the total of the variance that is highest value among all factors. So on the basis of greater than 1 criterion, eigenvalues provide us seven factor solution was deemed appropriate.

Although from the analyst's perspective, variables with eigenvalues of 1.00 or higher are traditionally considered worth analysing, however, Gorsuch (1983) presented the researcher's approach can provide explanation-overriding reasons for selecting other numbers of factors. The researcher better considered six-factor solution for the present data.

The decision about the final number of factors and about the retention and deletion of the items in a given solution depends on the requirement of the desired construct as well. Hence, it was decided to take the advantage of researcher preference. It was acknowledged not to retain the factor VI having an eigenvalue of more than 1, i.e., 1.03. The reason for not including factor VI that the items clustered in this factor with >.35 loadings had negative values. As all items in the scale were positively worded so, negative values with only these two items indicate that these items are complicated as the EFA shows negative values for only those items which are reverse scored. Another reason is that there were only two items in that domain and had from different dimensions. So finally, a six-factor solution was obtained.

Phase-II: Psychometric Properties of the Scale

The Phase-II was aim at establishing the psychometric properties of the Schadenfreude Scale (SS). In order to achieve these objectives, data was collected on Schadenfreude Scale (SS). Confirmatory Factor Analysis was done for the confirmation of literature-based dimensions of the schadenfreude as well as to establish the factorial validity. After conducting CFA, data was subjected to multiple statistical analyses. Therefore, descriptive statistics, Pearson product moment correlation, alpha reliability analysis was computed.

Step-I: Confirmation of Factor Structure through CFA. After establishing dimensions of schadenfreude scale through Exploratory Factor Analysis, Confirmatory Factor Analysis was conducted to establish the construct validity by confirming the factor structure of Schadenfreude Scale.

An independent sample comprised 320 adolescent (159 boys and 161 girls) was taken. participants were from different educational levels including intermediate,

graduation, M.Sc, and M.Phil. The sample age ranged from 15 to 24 years. The Schadenfreude Scale with item structure emerged in EFA was used in this phase. The retained version of instrument including 30 items was used to conduct CFA.

The data was subjected to further statistical analysis in order to confirm the measurement model of all the scales and for the establishment of construct validity. To ensure the factor structure and dimensionality of instruments all items were factor analysed through confirmatory factor analysis using AMOS-18. The purpose of CFA in data analysis is to determine the degree to which the hypothesized model as a whole is consistent with the empirical data at hand. These differences are referred to as goodness of fit indices and a wide range of indices can be used as summary measures of a model's overall fit. For this purpose, several indices were used to explain the best model fit including CFI, GFI, RMSEA and TLI as they were commonly reported once in recent literature (McDonald & Ringo Ho, 2002). The criterion followed for the interpretation of these indices are as root mean square error of approximation (RMSEA the smaller is better) given by Bentler (1990); Browne and Cudeck (1993); Goodness of fit index (GFI > .90) by Joreskog and Sorborn (1989), Normed fit index (NFI > .90) Bentler and Bonett (1980), Comparative fit index (CFI > .90) by Bentler (1990), and Tucker-Lewis index (TLI > .90) developed by Tucker and Lewis (1973). The present research findings of CFA are given below in detail.

Table 3

Factor Loadings of confirmatory factor analysis for Schadenfreude Scale (N=320)

Items	Factors
	Rivalry
Item 2	.51
Item 17	.55
Item 19	.57
Item 27	.65
Item 29	.53
Item 31	.71
Item 32	.65
Item 33	.57
	Negative Emotions
Item 9	.69
Item 11	.80
Item 13	.73
	Unfairness
Item 5	.53
Item 24	.81
Item 25	.78
Item 28	.75
	Worthlessness
Item 22	.66
Item 26	.81
Item 30	.77
	Comparison Bias
Item 3	.64
Item 4	.67
Item 6	.75
Item 7	.74
Item 8	.75
	Helplessness
Item 10	.59
Item 12	.60
Item 14	.65
Item 15	.62
Item 20	.66

Table 4

Model fit indices of CFA for Schadenfreude Scale (N = 320)

Indices	Chi square	*df*	CFI	RMSEA	GFI	TLI	RMR
Model	620.911	335	.91	.05	.88	.91	.06

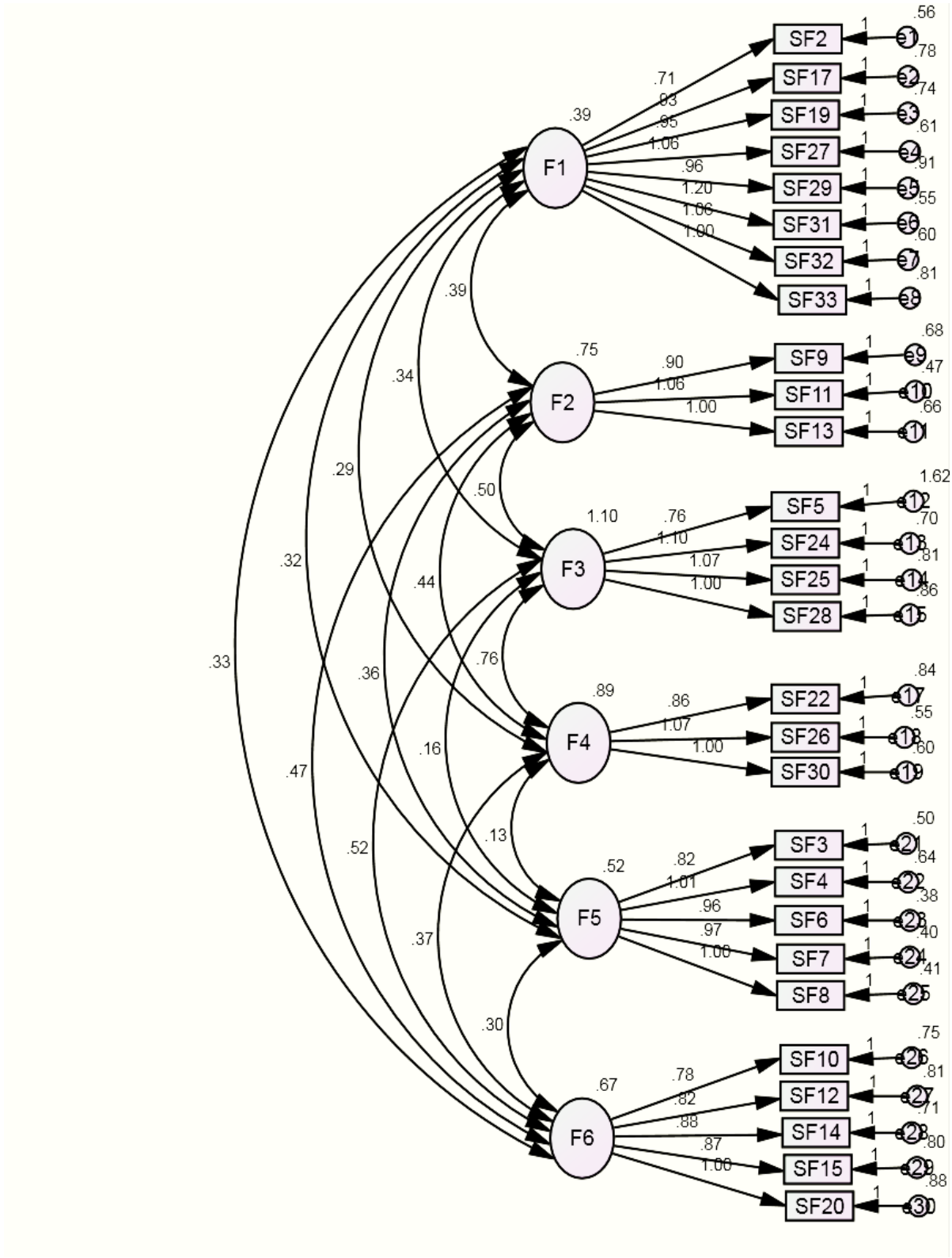

Figure 1. Measurement Model of Schadenfreude Scale.

The tables 3, 4 and figure 1 present the findings of factor loadings and model fit indices of CFA for schadenfreude scale. Based on the initial criteria i.e., item loading > .35 the model obtained through EFA was examined in CFA and this factor structure showed a good fit to the data with chi square 620.911 (*df* = 335), CFI = .91, GFI = .88, TLI= .90 and RMSEA = .05. The final model contain 28 items presenting a good model fit with 8 item in

'rivalry', 3 in 'negative emotions', 4 in 'unfairness', 3 in 'worthlessness' 5 in 'comparison bias' and 5 items in 'helplessness'. The factor loadings ranged from .35 to .64.

Step-II. Reliability of schadenfreude Scale.

Table 5

Descriptive statistics, alpha reliability coefficients, univeriate normality of Schadenfreude Scale and its sub-scales (N = 320).

Variables	*M*	*SD*	Minimum	Maximum	α	Skewness	Kurtosis
Schadenfreude	70.03	19.50	33	131	.92	.17	-.55
1. Rivalry	20.57	9.78	8	40	.93	.83	-.31
2. Negative emotions	5.00	2.36	3	15	.61	1.28	1.45
3. Unfairness	11.50	3.86	4	20	.77	.02	-.95
4. Worthlessness	10.56	3.74	4	20	.76	.17	-.70
5. Comparison bias	11.42	3.86	6	30	.71	.66	.53
6. Helplessness	12.95	3.81	5	25	.72	.08	-.24

Table 5 shows descriptive statistics and alpha reliability coefficients of Schadenfreude Scale and its subscale. Alpha coefficients indicate that Schadenfreude Scale and its subscales have satisfactory internal consistency. The skewness and kurtosis values are less than 2 for all scales indicating that the data is normally distributed and the univeriate normality is not problematic.

Table 4

Pearson product moment correlation among Schadenfreude Scale and its sub-scales (N = 320)

Variables	1	2	3	4	5	6	7
1. Schadenfreude	-	.89***	.27***	.75***	.70***	.63***	.70***
2. Rivalry		-	.04	.62***	.57***	.42***	.47***
3. Negative emotions			-	.26***	.10	.40***	.33***
4. Unfairness				-	.48***	.33***	.48***
5. Worthlessness					-	.30***	.30***
6. Comparison Bias						-	.45***
7. Helplessness							-

****p*<.001

Table 4 shows zero order correlations among study variables. Results shows that Schadenfreude has significant positive correlation with all its subscales which suggests that all sub-scales are measuring the same construct i.e., Schadenfreude. All sub-scales are also significantly positively correlated with each other except Rivalry that has low correlation with negative attitude and Negative Emotions, which has low correlation with Worthlessness.

Step-III. Convergent and Discriminant validity of the scale

To test the validity of the scale, along with schadenfreude scale, episodic envy scale and Rosenberg self-esteem scale were also administered on the same sample. As previous researches indicate that envy and schadenfreude are similar constructs and envy is positively related to schadenfreude (vanDijk et al., 2005) whereas self-esteem is negatively correlated with schadenfreude (Leach et al., 2003)

Table 5

Pearson product moment correlation among Schadenfreude, Episodic Envy and Self-esteem (N = 320)

Variables	1	2

Schadenfreude	.23***	-.30***
Episodic envy	-	-.34***
Self-esteem		-

****p*<.001

Table 5 shows zero order correlations among study variables. Results show that Schadenfreude has significant positive correlation with episodic envy which indicates the convergent validity of the instrument and has significant negative correlation with self-esteem which is an indicator of the discriminant validity of the instrument.

Discussion

The purpose of the present study was the development of the scale and its validation. The Schadenfreude Scale was designed to measure the individual inclination/tendency to feel schadenfreude. There are three important features intrinsic to Schadenfreude Scale. First, instead of only measuring occurrence or intensity of Schadenfreude in different conditions (domains), it aims to assess the degree of experience of schadenfreude. Secondly, it does not assess schadenfreude in a particular condition but assess the general tendency of an individual to feel schadenfreude. Thirdly, the measure includes items peculiar to the social and cultural context of Pakistan.

Schadenfreude Scale is a 28 items measure. The Scales is comprised on six dimensions including (1) Rivalry, (2) Negative Emotions, (3) Unfairness, (4) Worthlessness, (5) Comparison Bias, and (6) Helplessness. The scale is arranged in 5 point Likert type scale from 1 to 5, with 1 indicating 'never' and 5 indicating 'always'. For this measure, the scores range from 28 to 140. All the items are positively worded/scored. A sufficient reliability and internal consistency was established through Cronbach's Alpha (r=.91) and item total correlation.

The measure could help to identify the tendency of individuals to feel schadenfreude. The higher scores on Schadenfreude Scale will indicate higher tendency of an individual to feel pleasure on the sufferings of others whereas low scores indicate low level of individual's tendency to feel pleasure on others' sufferings.

The scale development was based on a systematic sequence in which, (1) empirically driven schadenfreude conditions and related dimensions in the literature were identified and focus group guidelines were developed. Focus groups were conducted to obtain the in-depth knowledge regarding major attributes of schadenfreude among adolescents, and (3) by using content analysis of the focus groups, items were generated on different dimensions (conditions) of schadenfreude. (4) Item writing was done clearly in the light of the empirical literature and the first-hand information obtained from the content analysis of focus groups. (5) The items were examined by five subject matter experts in order to rate their appropriateness with the underlying constructs. Every item was independently evaluated by the subject matter experts to check their relevance with the construct being measured. Thus, the scale has been keenly evaluated for content validity as well as the face validity. The face validity was ensured because the emotion i.e. schadenfreude being measured in the scale is rather sensitive and could be vulnerable to social desirability if the items were not worded appropriately.

A try-out was done by administering the scale on 20 participants in order to ensure that the scale was free from ambiguities and the items were conveying clear meanings. All the participants were instructed to indicate the ambiguities and difficulty in the understanding of the scale items. The respondents successfully completed the scale without asking any question during the completion of the scale. After the completion of the scale, the researcher again asked the participants to share the problems—if any—they faced during the completion of the scale. Thus, it was twice confirmed—during and after the scale completion—that scale was free from ambiguities and therefore worded appropriately from

the respondents' point of view. At this point, the scale was finalized to collect to information at broader level.

After the construction of the scale, exploratory factor analysis was done in order to establish factor structure of the scale and a principal component solution was obtained. For this purpose data was collected from 330 adolescents including both males and females. A total of six factors with eigenvalues greater than 1.00 were extracted by using direct oblimin rotation—because the factors were correlated. Finally, six factors were extracted including rivalry, negative emotions, unfairness, worthlessness, comparison bias and helplessness. The items were loaded on their distinct factors. Kline's (2005) criterion was used for the extraction of the items. Thus, items having the factor loadings of .35 and above were extracted for the final scale. One item was overlapping on two factors; it was qualitatively analyzed and included in the relevant factor. After extracting the factors, the schadenfreude scale was further validated by computing the item-total correlation for all the items of the scale. While computing the solution, the criterion suggested by Nunnally and Bernstein (1994) ―that item having a correlation coefficient of greater than .30 and greater with the total scores should be retained—was strictly followed. The coefficients of the item-total correlation were greater than .30 on all the items of which provided an additive support for retaining the items extracted through factor analysis―indicating the satisfactory degree of homogeneity of the items with the underlying constructs.

In Phase-II psychometric properties of the scale were established. For this purpose, confirmatory factory analysis was executed to test and confirm how well data supports the factor structure of the measures emerged through EFA in of this phase. CFA is an example of the measurement model of the structural equation modeling using AMOS-18. Confirmatory factor analysis (CFA) was used to confirm the measurement model as well as to establish the construct validity of instruments. CFA explains how well the data supports the factor structure drawn through exploratory factor analysis. Based on initial criteria for item loading (item loading > .4) the model was reexamined and two items (one from social comparison bias *(apny se kamtar logon ki nakaami par)* and the other from deservingness of suffering (*kisi shikhas ko asi saza miltay dakh kr jis ka wo mustahiq ho)* were excluded from the scale and 28 items were retained in Schadenfreude Scale. For schadenfreude scale, the six factor model emerged in EFA was confirmed in CFA with good model fit indices. The most commonly reported indices were taken as reference for good model fit including CFI, GFI, TLI, RMR & RMSEA with chi-square value. For Schadenfreude Scale the TLI and CFI exceed .90 and RMSEA was .05 presenting good measures of model fit as Schreiber et al., (2006) described above values as significant. The results suggested the existence of these dimensions of schadenfreude in adolescents. In order to test the internal consistency of the Schadenfreude Scale (SS) and it subscales, alpha reliability coefficients were computed. For unstandardized items, alpha reliability is based on covariance among the items (Coakes & Steed, 2003). Alpha reliability coefficients for the subscales of Schadenfreude Scale (SS) ranged from .71 to .93. For the overall Schadenfreude Scale (SS) alpha reliability coefficient was computed as .91. Reliability coefficients indicate satisfactory internal consistency for all subscales and the overall Schadenfreude Scale (SS). For a reliable behavioral measure, the reliability coefficient must be at least .70 or greater (Kline, 2005). Thus on the basis of the reliability coefficients, it can be claimed that the scale is a reliable instrument for measuring tendencies of schadenfreude among adolescent students. The Scale emerged as multi-factor measure and included the dimensions of Rivalry (8 items), Negative Emotions (3 items), Unfairness (4 items), Worthlessness (4 items), Comparison Bias (6 items), and Helplessness (5 items).

After establishing the reliability of the Schadenfreude Scale (SS), issues related to univariate normality were addressed. The normal distribution is characterized by symmetric

distribution of data around the centre of the curve—majority of the scores lie in the centre. The symmetrical bell-shaped normal distribution deviates from the normal in two ways including lack of symmetry and pointiness—also known as skewness and kurtosis respectively (Field, 2005). In the skewed distribution, the scores cluster either on the right tail (positively skewed) or on the left tail (negatively skewed) of the curve (Miles & Shevlin, 2001). Similarly the normal curve is neither leptokurtic (having more scores in the center) nor platykurtic (having more scores on the tails) (Field, 2005). Therefore, the values of skewness and kurtosis were computed for all subscales and the Schadenfreude Scale (SS). It is recommended that the values of skewness and kurtosis must be less than +2 and -2. The items or scales exceeding this limit are considered problematic and should be excluded from the data (Muthen & Kaplan, 1985). The findings show that the values of skewness and kurtosis are less than 2 for all subscales and the overall scale. Thus, the data does not contain the problems with univariate normality.

Beside factorial validity, construct validity was also established. Construct validity refers to whether the scale measures the same construct for which it was developed. The construct validity is further divided into two parts including convergent validity and divergent validity (Anestessi, 2006). In order to measure the construct validity of the scale, inter-scale correlations were computed. The Schadenfreude Scale (SS) was correlated with Episodic Envy Scale (EES) and Self-Esteem Scale (SES). Episodic envy was positively correlated with schadenfreude indicating convergent validity evidence and self-esteem was negatively correlated with schadenfreude showing divergent validity evidence for the scale.

The main objective of the present study was to construct a valid and reliable instrument for measuring tendencies of schadenfreude among adolescent students. The scale was based on empirical literature and information collected through focus groups. The principal component analysis resulted in the development of a six factors scale which had empirical basis. Thus, the resulting Schadenfreude Scale (SS) comprised of six factors including conflict and rivalry, negative attitude, injustice, deservingness of suffering, comparison bias, perceived helplessness. Besides factorial validity, item-total correlations also reconfirmed the importance of the items for the scale. The content and face validity concerns were also addressed because the scale was based on a rather sensitive emotion and thus vulnerable for social desirability. Similarly construct validity was also ensured by collecting the convergent and divergent validity evidences. Alpha reliability coefficients indicated that the scale and its subscales are reliable. The Skewness and kurtosis values confirmed that symmetry and pointiness was not problematic. Moreover, Confirmatory Factor Analysis ensured the construct validity of the scale. Overall, the Schadenfreude Scale (SS) is a reliable and valid instrument to measure tendencies of schadenfreude among adolescents.

References

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 3,* 238–246.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness-of-fit in the analysis of covariance structures. *Psychological Bulletin, 88,* 588-600.

Ben-Ze'ev, A. (2000). *The subtlety of emotions.* Cambridge, MA: MIT Press.

Brigham, N. L., Kelso, K. A., Jackson, M. A., & Smith, R. H. (1997). The roles of invidious comparisons and deservingness in sympathy and Schadenfreude. *Basic and Applied Social Psychology, 6,* 499-503.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In: Bollen, K. A. & Long, J. S. (Eds.), *Testing Structural Equation Models* (pp. 136–162). Beverly Hills, CA: Sage.

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioural Research,* 1, 245-276.

Cikara, M, & Fiske, S. T. (2011). Us versus them social identity shapes neural responses to intergroup competition and harm.*Psychological science, 22*(3), 306-313.

Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The stereotype content model and the BIAS map. *Advances in Experimental Social Psychology, 40,* 61–149.

Feather, N. T. (2006). Deservingness and emotions: Applying the structural model of deservingness to the analysis of affective reactions to outcomes. *European Review of Social Psychology*, 19, 363–380.

Feather, N. T., & Sherman, R. (2002). Envy, resentment, *schadenfreude*, and sympathy: Reactions to deserved and undeserved achievement and subsequent failure. *Personality and Social Psychology Bulletin*, 28, 953–961.

Field, A. (2005). *Discovering Statistics Using SPSS* (2nd ed.). London. Sage Publications

Freethey, M., & Williams, E. N. (2006). Schadenfreude, social comparisons and competiton. Unpublished Becholar Dissertation, St. Mary's College of Maryland, Maryland.

Guertin, W. H., J. P. Bailey (1970). *Introduction to Modern Factor Analysis.* Ann Arbor, MI: Edwards.

Hareli, S., & Weiner, B. (2002). Dislike and envy as antecedents of pleasure at another's misfortune. *Motivation and Emotion, 26,* 257–277. doi:10.1023/A:1022818803399

Heider, F. (1958). *The psychology of interpersonal relations*. New York: John Wiley & Sons.

Hui, C. H., & Triandis, H. C. (1986). Individualism-collectivism: A study of cross-cultural researches. *Journal of Cross-Cultural Psychology, 17,* 225-248.

Joreskog, K., & Sorborn, D. (1989). *LISERAL 7 a guide to the program and applications* (2nd ed.). Chicago: SPSS Inc.

Kaiser, H. F. (1958). The varimax criterion for analytic rotation in in factor analysis. *Psychometrika,* 23, 187-200.

Kline, R. B. (2005). *Principles and practices of structural equation modelling* (2nd ed.). New York: Guilford.

Leach, C. W., & Spears, R. (2008). "A vengefulness of the impotent": The pain of in-group inferiority and schadenfreude toward successful outgroups. *Journal of Personality and Social Psychology, 95,* 1383–1396. doi:10.1037/a0012629

Leach, C. W., Iyer, A., & Pedersen, A. (2006). Anger and guilt about ingroup advantage explain the willingness for political action. *Personality and Social Psychology Bulletin, 32*(9), 1232-1245.

Leach, C. W., Spears, R., Branscombe, N. R., & Doosje, B. (2003). Malicious pleasure: *Schadenfreude* at the suffering of another group. *Journal of Personality and Social Psychology, 84*, 932–943. doi: 10.1037/0022-3514.84.5.932.

McDonald, R. P., & Ringo Ho, M. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods, 7*(1), 64-82.

McNamee, M. J. (2007). Schadenfreude in Sport: Envy, Justice and Self-Esteem. *Journal of the Philosophy of Sport, 30*(1), 1–16.

Miles, J., & Shevlin, M. (2001). *Applying regression and correlation: A guide for students and researchers*. Sage.

Muthen, B., & Kaplan, D. (1985). A comparison of some methodologies for the factor analysis of non-normal likert variables. *British Journal of Mathematical and Statistical Psychology*, *38*, 171-189.

Nietzsche, F. (1967). *On the genealogy of morals*. New York: Random House.

Nunnally, J. C., & Bernstein, I. H. (1991). Psychometric theory. 1994. *McGraw, New York*.

Parrott, W. G. (1991). The emotional experiences of envy and jealousy. In P. Salovey (Ed.), *The psychology of jealousy and envy* (pp. 3–30). New York: Guilford.

Shaver, K. (1985). The attribution of blame: Causality, responsibilit', and blameworthiness. New York: Springer-Verlag.

Singer, T. (2006). The neuronal basis and ontogeny of empathy and mind reading: review of literature and implications for future research. *Neuroscience & Biobehavioral Reviews*, *30*(6), 855-863.

Smith, R. H. (2000). Assimilative and contrastive emotional reactions to upward and downward social comparisons. In L. Wheeler & J. Suls (Eds.), *Handbook of Social Comparison: Theory and Research.* New York, NY: Kluwer Academic Publishers.`

Smith, R. H., & Kim, S. H. (2007). Comprehending envy.*Psychological Bulletin, 133*, 46–64.

Tiedens, L. Z., & Leach, C. W. (2004). *The social life of emotions.* New York: Cambridge University Press.

Triandis, H. C. (2001). Individualism-collectivism and personality. *Journal of Personality, 69* (6), 907-924.

Triandis, H.C., McCusker, C., & Hui, C.H. (1990). Multimethod probes of individualism and collectivism. *Journal of Personality and Social Psychology*, *59*, 1006-1020.

Tucker, L., & Lewis, C. (1973).A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, *38*(1), 1-10.

Van Dijk, W. W., Goslinga, S., & Ouwerkerk, J. W. (2008). Impact of responsibility for a misfortune on schadenfreude and sympathy: Further evidence. *The Journal of social psychology*, *148*(5), 631-636.

Van Dijk, W. W., Ouwerkerk, J. W., Goslinga, S., & Nieweg, M. (2005). Deservingness and schadenfreude. *Cognition and Emotion, 19*, 933–939.

van Dijk, W. W., Ouwerkerk, J. W., Goslinga, S., Nieweg, M., & Gallucci, M. (2006). When people fall from grace: Reconsidering the role of envy in *Schadenfreude. Emotion, 6,* 156–160. doi:10.1037/1528-3542.6.11

Van Dijk, Wilco W. and Ouwerkerk, Jaap W. and Goslinga, Sjoerd, (2009). "The Impact of Deservingness on Schadenfreude and Sympathy: Further Evidence", *Journal of Social Psychology, 149*, (3) 390-392.`

vanDijk, W. W., Ouwerkerk, J. W., Wesseling, Y. M., & van Koningsbruggen, G. M. (2011). Towards understanding pleasure at the misfortunes of others: The impact of self-evaluation threat on schadenfreude. *Cognition and Emotion, 25,* 360 – 368.doi:10.1080/ 02699931.2010.487365