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Relationship between perceived workplace envy and job performance in Egypt: Moderating effect of self-esteem

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☙ ABSTRACT. L'invidia percepita è un'emozione prevalente sul posto di lavoro che può influenzare il comportamento organizzativo e le relazioni interpersonali. L'invidia è collegata all'ostilità verso gli altri: tuttavia, in Egitto, l'attenzione sull'invidia percepita e sulle sue conseguenze nel posto di lavoro è limitata e questo studio è il primo ad indagarla dal punto di vista egiziano. Lo studio esamina le relazioni tra l'invidia percepita sul posto di lavoro e la prestazione lavorativa (comprende: prestazione nel compito, prestazione contestuale e comportamento controproducente sul lavoro). Inoltre, viene indagato l'effetto moderatore dell'autostima su queste relazioni. Un campione di convenienza di 303 dipendenti egiziani (121 maschi e 182 femmine) è stato selezionato dal settore privato e pubblico in Egitto. I soggetti hanno risposto a tre questionari che valutavano l'invidia percepita sul posto di lavoro, le prestazioni lavorative e l'autostima. I risultati hanno dimostrato che esiste una significativa relazione di correlazione negativa tra prestazioni contestuali e invidia percepita sul posto di lavoro, mentre un comportamento controproducente sul lavoro è stato positivamente associato con l'invidia percepita sul posto di lavoro. Inoltre, i risultati della regressione hanno rivelato che l'autostima modera solo la relazione tra l'invidia percepita sul posto di lavoro e le prestazioni contestuali. I risultati contribuiranno a migliorare la comprensione dell'invidia percepita sul posto di lavoro e dei suoi risultati negativi.

☙ SUMMARY. *Perceived workplace envy is a prevalent emotion. Moreover, envy may influence in organizational behavior and interpersonal relations. Envy is linked with hostility toward others. However, the focus on perceived envy and its consequences at the workplace is limited in Egypt. This study is the first to investigate perceived workplace envy from the Egyptian perspective. Toward this end, the current study examines the relationships between perceived workplace envy and job performance (includes: task performance, contextual performance and counterproductive work behavior). In addition, the study investigates the moderating effect of self-esteem on these relationships. A convenience sample of 303 Egyptian employees (121 males and 182 females) was selected from private and public sectors in Egypt. They responded to three questionnaires that assessed perceived workplace envy, job performance, and self-esteem. The results demonstrated that a significant negative correlation relationship exists between contextual performance and perceived workplace envy, whereas counterproductive work behavior was positively associated with perceived workplace envy. Additionally, the regression results revealed that self-esteem was found to moderate the relationship between perceived workplace envy and contextual performance only. The findings will contribute to the enhancement of the understanding on perceived workplace envy and its negative outcomes.*

Keywords: *Perceived workplace envy, Job performance, Self-esteem, Egypt*

INTRODUCTION

Envy is a prevalent emotion at the workplace (Smith & Kim, 2007), which influences organizational behavior and work context (Eissa & Wyland, 2016; Vidaillet, 2007). In addition, it is an unpleasant and undesirable emotion that stems from the dark side of a person, which may become undeniable and exert a negative impact in the workplace (Mosquera, Parrott & Hurtado de Mendoza, 2010; Van de Ven, Zeelenberg & Pieters, 2009; Vidaillet, 2007).

According to Parrot and Smith (1993), envy occurs when a person lacks or desires the qualities and achievements of others. Smith and Kim (2007) defined envy as "an unpleasant and often painful blend of feelings characterized by inferiority, hostility, and resentment caused by comparison with a person or group of persons who possess something we desire" (p. 49). Although envy and jealousy are often used synonymously, they are distinct concepts. Envy refers to situations in which an individual want what another individual has. Conversely, jealousy pertains to situations in which person Y wants what person X owns. However, person X does not want to share ownership with person Y. Additionally, envy involves two persons (envier and envied), whereas jealousy involves three persons and corresponds to the emotions aroused when one person fears losing a valued relationship to a rival (Cohen-Charash, 2009; Sheppard, 2017; Smith, Parrott, Diener, Hoyle & Kim, 1999). However, envy and jealousy are unpleasant and painful emotions (Sheppard, 2017). Additionally, envy is considered one of the forms of negative interpersonal relations at the workplace (Eissa & Wyland, 2016). Moreover, envy is linked with hostility, negativity toward others such as harming the envied, putting the envied down, diminish the qualities of others and or resentful feelings (Tai, Narayanan & McAllister, 2012). In addition, envy decreases one's desire to establish relationships and openness to sharing achievements and information with others (Dunn & Schweitzer, 2004; Eissa & Wyland, 2016). Furthermore, envy can be a predictor of mental health issues, such as stress, anxiety, and depression, which may lead to further costs for health care in organizations (Erdil & Müceldili, 2014). Goetzel, Guindon, Turshen and Ozminkowski (2001) illustrated that approximately 50% of costs incurred in the workplace is linked to mental health issues. Envious feelings may reduce job and group satisfaction and promote withdrawal, turnover intention, and decreased commitment (Duffy & Shaw, 2000; Tai et al., 2012). Furthermore, envy increases exhaustion, burnout, and poor job engagement (Erdil & Müceldili, 2014; Tai et al., 2012).

Envy is considered a sensitive topic because individuals seldom admit feeling envy toward another individual (Mosquera et al., 2010). Previous studies have observed that envy has significant consequences on the envier and envied individuals (Mosquera et al., 2010; Van de Ven et al., 2009; Vidaillet, 2007). The literature on perceived envy in the workplace has paid little attention to the topic, especially in the Egyptian context. Furthermore, the concept of envy is considered with religious specificity, and Egypt is a society with a religious orientation. Moreover, in this line with the religious background of Egypt, as it is stated in the Holy Quran that benign envy is religiously acceptable, because the enviers do not desire to harm others. This is in contrast to malicious envy, which is not acceptable in the Holy Quran. In addition, the majority of previous research has focused on enviers (e.g., Lee, Duffy, Scott & Schippers, 2018; Schaubroeck & Lam, 2004; Tai et al., 2012). Accordingly, overlooking the crucial role of envy generally and at the workplace restricts the understanding of researchers regarding its negative outcomes across numerous levels (e.g., interpersonal relations, individual performance, and incentives) (Tai Tze Suen, 2013). To fill this research gap, the current study focuses on perceived workplace envy. Specifically, it aims to highlight individuals who are envied (target) with a focus on the negative and unpleasant experience of being envied.

Literature review

Perceived workplace envy (PWE). Envy is one of the important workplace constructs that have a significant emotional impact on employees and organizations (Erdil & Müceldili, 2014; Vecchio, 2000). Workplace envy occurs when employees observe injustice in the distribution resources of organizational authorities, promotions, salary, and opportunities (Shu & Lazatkhan, 2017; Tai et al., 2012). Envy can be explained as a result of social comparison between the envier and the target (envied) (Khan, Peretti & Quratulain, 2009). People are more likely to be envious when they consider themselves inferior to another person in any manner (Vrabel, Zeigler-Hill & Southard, 2018). Previous studies proposed that employees who have superior resources than their coworkers frequently become the envied (Hill & Buss, 2008; Shu & Lazatkhan, 2017; Wobker, 2015).

Hence, dealing with envy is commanding for employers and employees because it impacts employees' attitude and behavior toward the organization and coworkers (Shu & Lazatkhan, 2017).

Envy can be classified as benign or malicious envy. The first may motivate individuals to excel, thus accordingly reducing the differences between them and the targets of envy through self-enhancement. However, the second is related to undesirable consequences (Erdil & Müceldili, 2014; Tai et al., 2012; Van de Ven et al., 2009). The source of malicious envy is more likely prone to inferiority and hostility, which may bring harm to the envied people or organization (Cohen-Charash, 2009; Erdil & Müceldili, 2014; Shu & Lazatkhan, 2017). Furthermore, malicious envy can trigger acts that decrease or eliminate the advantage of others or even risk one's position to hurt the prospects of others (Mosquera et al., 2010; Thompson, Glasø & Martinsen, 2016; Van de Ven et al., 2009).

With respect to the perceived envy at workplace, envied employees may experience negative emotions, which cause dissatisfaction and affect employee performance in a negative manner. In addition, envied employees have to cope with envy, which will consume considerable resources, time, and effort (Huang, Tao & Jiang 2018; Lee et al., 2018). Furthermore, they may feel uncomfortable and anxious as they perceive that their qualities and achievement arouse interpersonal conflict and threaten social relationships and work achievements (Lee et al., 2018). Envy is correlated with psychological and physical pain because it is an unpleasant and uncomfortable feeling (Duffy, Scott, Shaw, Tepper & Aquino, 2012). Such pain fosters stress and frustration at the workplace. When people experience stresses every day, they cannot appropriately deal with it sufficiently (Erdil & Müceldili, 2014). Therefore, the current study seeks to shed light on the people who perceive themselves as targets of envy and its negative consequences at the workplace; it may effect on their interpersonal relations (e.g. abuse against others, making fun, nasty comments, withdrawal behavior), their job performance (e.g. poor task performance, absenteeism) and work context (job satisfaction, job engagement, stressful work environment). Consequently, the envied may perceive envy as stressful event.

Perceived workplace envy and job performance. Job performance (JP) is defined as "the total expected value to the organization of the discrete behavioral episodes that an individual carries out over a standard period of time" (Motowidlo, 2003: p. 39). In addition, job performance is a

concept that consists of behaviors under an employer's control, which contribute to the accomplishment of organizational goals (Campbell & Wiernik, 2015; Koopmans, 2015; Ramos-Villagrasa, Barrada, Fernández-del-Río & Koopmans, 2019). Previous studies conceptualized Job performance from three main domains, namely, task performance, contextual performance (Koopmans, 2015; Ramos-Villagrasa et al., 2019), and counterproductive work behavior (Koopmans, 2015; Ramos-Villagrasa et al., 2019; Saad, 2019).

Task performance (TP) refers to activities that contribute to the production of goods or provision of services, such as planning, organizing, and workforce functions that enable efficient organizational functioning (Rotundo & Sackett, 2002; Saad, 2019). It involves behaviors that differ across jobs and job description, such as implementing tasks, ensuring accurate work, planning and organizing, updating knowledge, and solving problems (Koopmans, 2015; Ramos-Villagrasa et al., 2019; Saad, 2019).

Contextual performance (CP) or organizational citizenship behavior refers to behaviors that contribute to the accomplishment of organization goals by contributing to the psychological and social environments (Rotundo & Sackett, 2002). It comprises behaviors beyond duties, such as, assistance, initiative, volunteerism, proactivity, support, cooperation with others, or enthusiasm to perform extra effort (Koopmans, 2015; Ramos-Villagrasa et al., 2019; Saad, 2019).

Counterproductive work behaviors (CWBs) can be defined as a worker's behavior that contradicts the organization's legitimate interests and harms or destroys the organization (Koopmans, 2015; Rotundo & Sackett, 2002). It involves destroying company property, presentism, complaining, insulting another employee, doing tasks incorrectly on purpose, gossiping, and misusing privileges (Koopmans, 2015; Ramos-Villagrasa et al., 2019). Such deviant behaviors are associated with negative outcomes such as, absenteeism, complaining and doing tasks incorrectly on purpose, at the personal and organizational levels (Khan et al., 2009; Koopmans, 2015).

Recent studies suggested that benign envy leads to positive consequences and may predict increased appreciation, willingness to learn, and advice-seeking from the envied (Cohen-Charash, 2009; Lee & Duffy, 2019; Van de Ven et al., 2009), improved motivation to work (Lee & Duffy, 2019), and enhanced job performance (Lee & Duffy, 2019; Schaubroeck & Lam, 2004). However, empirical evidence exists with respect to the relationship between workplace envy and negative

consequences (Erdil & Müceldili, 2014; Koopmans, 2015). As previously mentioned, envy is considered an unpleasant and negative emotion that leads to stress in the workplace. In turn, stress leads to exhaustion, anxiety, and burnout. Additionally, envy negatively affects interpersonal relationships and leads to reduced engagement in organizational roles (Erdil & Müceldili, 2014; Tai et al., 2012) and job performance (Lee et al., 2018). Successful employees who strive to attain incentives, promotions, and other rewards experience stress and negative emotions, which reflect on their job performance when they are perceived as targets of envy by coworkers (Cohen-Charash & Mueller, 2007; Mosquera, Parrott & De Mendoza, 2010; Vecchio, 2005).

Envious workers may direct counterproductive behaviors to other employees (Cohen-Charash & Mueller, 2007). As a result, envied employees may become anxious of the negative and hostile behaviors of envious people, which then weaken their performance (Erebak, 2019; Exline & Lobel, 1999). Khan et al. (2009) found that envy was a significant predictor of counterproductive work behaviors (e.g., withdrawal behavior, gossip, and abuse against others). In addition, employees who perceive envy from others tend to display low levels of job satisfaction (Erebak, 2019; Vecchio, 2005). Lee and colleagues (2018) indicated that envied persons can elicit unpleasant mood or undesirable feelings and anxiety that negatively influence work engagement and job performance. Exline and Lobel (1999) found that being envied reduces person's performance. Furthermore, envied workers are consumed by anxiety, which affects their concentration at work (Khan et al., 2009; Kodewrita, 2012). Being envied influences the motivation of employees (i.e., work engagement) followed by functioning at work in a negative manner (i.e., job performance) (Khan et al., 2009). Furthermore, employees may perceive that envious coworkers threaten their relationships with other employees and supervisors. Additionally, envied workers may feel uncomfortable and anxious because they perceive that their achievement induces relational conflicts at the workplace. In addition, they may fear that coworkers who feel inferior can become hostile and potentially harm their social relationships at the workplace and organizational rewards (e.g., Cohen-Charash & Mueller, 2007; Khan et al., 2009; Lee et al., 2018).

Building on the conservation of resources theory (COR), proposed by Stevan E. Hobfoll in 1989 to explain that humans are motivated to maintain their current resources and achieve new resources. COR argued that both maintain resources or gain new resources depend on persons' appraisals of stressful events and able to cope with these events. Furthermore, COR assumed that people who lack resources more vulnerable to negative outcomes (e.g. burnout, psychological distress, material loss) (Hobfoll & Schumm, 2009). So, envied individuals who appraise workplace envy as stressful situation and suffer from anxiety and unpleasant feelings at the workplace, this appraisal might influence negatively on their job performance. Accordingly, the study expects negative effects on job performance (task performance and contextual performance) and positive relationships with counterproductive work behaviors among individuals who perceive malicious envy from other coworkers. Therefore, the paper presents the following hypotheses.

H_1: there is a negative relationship between perceived workplace envy and task performance and contextual performance.

H_2: there is a positive relationship between perceived workplace envy and counterproductive work behaviors.

Self-esteem as a moderating variable of the relationship between perceived workplace envy and job performance. Self-esteem (SE) can be defined as the degree of subjective evaluation to which individuals perceive themselves as proficient, successful, effective, and worthy, and is considered a fundamental domain of human functioning (McDonald & Leary, 2013; Shu & Lazatkhan, 2017). In addition, self-esteem pertains to one's perception of personal worth in terms of value, respect, and confidence (Bayram Arli, Aydemir & Aral, 2018).

The degree of self-esteem was negatively related with malicious and benign envy (Rentzsch, Schröder-Abé & Schütz, 2015; Vrabel et al., 2018). Previous studies have emphasized that people with low levels of self-esteem are more likely to make upward social comparisons than people with high levels of self-esteem (e.g. Brockner, Wiesenfeld & Diekmann, 2009; Shu & Lazatkhan, 2017). This finding may explain the negative association between levels of self-esteem and envy that has frequently emerged in past studies (e.g., Rentzsch et al., 2015; Shu & Lazatkhan, 2017). Envied individuals with high levels of self-esteem perceive themselves as targets of envy and can respond in a negative manner at the workplace because they tend to concentrate on means to avoid envy, which in turn influences job performance (Tai et al., 2012). Additionally, they spend time and effort in ruminating about being envied by coworkers instead of investing such time and effort in their work (Huang et al., 2018; Lee et al., 2018).

Rentzsch et al. (2015) suggested that triggering relational negative emotions (i.e., envy) contributes to the interpersonal negative or hostile behaviors of enviers with low levels of self-esteem. Furthermore, Vrabel et al. (2018) reported that employees with high levels of self-esteem will likely report that their coworkers envy them, whereas the opposite is true for employees with low levels of self-esteem. Therefore, the current study addresses the moderating role of self-esteem in the relationship between perceived workplace envy and job performance. The model of job demands-resources (JD-R) suggests that there is a relationship between job demands and resources and employees well-being (Lee et al., 2018). The JD-R model contains two dimensions; job demands which refer to physical, psychological, social, organizational features of the job that require sustained physical or/ and psychological effort, whereas job resources (job positives) which refer to the physical, social, or organizational factors that help you achieve goals, decrease stress and reduce job demands as well (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). According to the model of job demands-resources (JD-R), an increase in positive resources (personal and job) or decrease in negative job demands improve both organizational outcomes and person job performance (Lee et al., 2018). Accordingly, the current study considers self-esteem as (personal resources) and perceived workplace envy as (job demands) and job performance is considered the outcome. So, the third hypothesis is formulated as follows.

H_3: self-esteem moderates the relationship between perceived workplace envy and job performance.

METHOD

Sample and data collection

The study used a non-probability convenience sample of 303 Egyptian employees (121 males and 182 females). The participants were recruited from the private and public sectors. Participants were visited in their workplace and were asked to fill the questionnaires. Before participation, participants reviewed the consent form and were informed that their participation was strictly voluntary. Subjects were informed that their responses were confidential and would not reported to their organizations. To confirm anonymity, the subjects were informed that their responses and the names of their organizations will remain anonymous. Thus,

the participants were not required to state their names on the forms. The questionnaires were completed in single and group sessions. Each group consists of 3-4 employees. Data were collected on March 2020. Latin square procedure was used to control the sequence of presenting the three questionnaires. Table 1 provides the characteristics of the sample.

Measures

Perceived workplace envy. We reviewed the available literature on perceived workplace envy. Since studies on perceived workplace envy were limited. only one questionnaire developed by Vecchio (2005) was designed for graduated business students to measure feeling of being envied by others and contains only 3-item, To more understand the perceived workplace envy, we conducted a pilot study on 50 employees. Subjects were asked about their experiences of being envied at their work by their co-workers. Based on the results of pilot study and the literature review, we developed an 18-item scale to measure the perception of being envied by coworkers. All items were measured on a five-point Likert scale ranging from 1 (never happens) to 5 (happens all the time), for example, my coworkers envy me for my achievement at work; my colleagues spot each achievement I do.

Job performance was measured using the *Individual Work Performance Questionnaire* (Koopmans, 2015; Ramos-Villagrasa et al., 2019). This questionnaire is composed of 18-items that measure the three dimensions of job performance, namely, task performance (5 items), contextual performance (8 items), and counterproductive work behavior (5 items). All items require a response on a five-point Likert scale ranging from (1 = never) to (5 = always), for example, "I managed to plan my work so that I finished it on time"; "On my own initiative, I started new task when my old tasks were completed"; "I talked to colleagues about the negative aspects of my work". Two bilingual individuals translated the questionnaire from English to Arabic using the back translation procedure. Then, a native professional translator evaluated the agreement between the English and Arabic forms, which is supposed to be similar to the translated form.

Self-esteem was measured using the Arabic version of the scale (Abdel-Khalek, Korayem & El-Nayal, 2012), which is based on the original version of the self-esteem scale

Table 1 – Participant characteristics

Characteristic	Description
Gender	
Male	39.9%
Female	60.1%
Age	*Range 20-66*
	M = 35.60 ± SD = 8.33
Education	
Postgraduate	73.6%
Bachelor	26.1%
High school	.3%
Sector	
Public	66%
Private	34%
Years of experience	*M = 11.74 ± SD = 8.08*

developed by Rosenberg (1965). It is composed of 10-item and rated on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). For example, "I feel that I have a number of good qualities, I do not have much to proud of". Moreover, demographic variables, such as sex, age, education, sector, and years of experience were considered. Table 2 provides the descriptive statistics and reliability coefficients of the abovementioned measures.

Notably, all Cronbach's alpha coefficients were rationally high. To assess the validity of PWE, the author used two procedures. First, the questionnaire was reviewed by a panel of eight experts who assessed the content of the items. The comments of all experts indicated that the used items are valid for measuring PWE. Second, exploratory factor analysis (EFA) is used to explore the factorial structure of PWE. Maximum likelihood factor analysis indicates a cut-off point

of .40 and Kaiser's criterion of eigenvalues greater than 1 (Field, 2009; Stevens, 1992).

As shown in Table3, two factors are extracted from the items. these factors were named as follows:

1. Malicious envy involves annoying others regarding their success and positive relationships with other employees and supervisors. A total of 13 items were loaded on this factor (for example, my colleagues compare themselves with me all the time; and my coworkers destroy my good relationships with managers) and explained (57.29%) of variance.

2. The spotting factor involves putting employee under close scrutiny regarding every step or achievement inside or outside workplace. Five items were loaded on this factor (for example: my coworkers tell me that they want to achieve what I achieved through my life), and explained (9.62%) of variance.

Table 2 – Descriptive statistics and reliability coefficients of variables

Variable	Mean	SD	Cronbach's alpha
Perceived workplace envy (PWE)	52.36	14.56	.954
Task performance (TP)	19.77	3.02	.823
Contextual performance (CP)	17.08	5.69	.884
Counterproductive work behavior (CWB)	14.01	3.87	.791
Self-esteem (SE)	37.19	5.12	.744

A confirmatory factor analysis, using AMOS20, was conducted to confirm the factor structure of the *Perceived Workplace Envy Questionnaire* in the Egyptian culture. The sample consisted of 248 participants (97 males and 151 females); aged 20-56 years ($M = 34.79$; $SD = 7.44$) as shown in Table 4.

It can be shown from the results that the *Perceived Workplace Envy Questionnaire* items have significant factor loadings on the latent variables. The fit indices for the factor structure were above the recommended levels of acceptance.

RESULTS

To test the first two hypotheses, namely, a relationship between exists PWE and JP (positive relationship with CWBs; negative relationship with TP and CP), Pearson's correlation coefficients. For more elaboration simple and multiple regression analysis were calculated, as shown in (Tables 5 to 7).

Results show that a significant negative relationship exists between CP and PWE with 99% confidence interval. Additionally, only a significant positive relationship exists between TP and spotting with 95% confidence interval. In addition, a significant positive relationship was observed between CWBs and PWE with 99% confidence interval. As well as a significant regression equation was found TP = 10.09 + (.24) (SE) + (.02) (PWE) where task performance increase when SE increase and PWE was not significant. Furthermore, a significant regression equation was found CP = 35.7 – (.38) (SE) – (.09) (PWE) where contextual performance increase when both WPE and SE decrease. In addition, a significant regression equation was found CWB = 16.29 – (.19) (SE) + (.09) (PWE) where counterproductive behaviors increase when WPE increase and SE decrease. Accordingly, the study supports the first two hypotheses.

To test the third hypothesis, the study assumes that SE moderates the relationship between PWE and JP. A multiple regression technique was conducted using the standardized scores of the total score for PWE and SE and interaction between them as independent variables (Tables 8 to 10).

Table 3 – Results of exploratory factor analysis

Item	Malicious envy	Spotting
1		.511
2	.598	
3	.912	
4	.932	
5	.929	
6	.766	
7	.837	
8	.738	
9		.844
10	.804	
11	.790	
12	.470	
13		.651
14		.772
15	.830	
16	.916	
17	.600	
18		.687
Eigenvalues	10.31	1.73
Percentage of variance	57.29%	9.62%

Table 4 – Fit indices for the factor structures of the PWE

Items	Malicious envy		Spotting	
	Estimate	*t-value*	*Estimate*	*t-value*
1			.507	10.545**
2	.681	12.963***		
3	.907	18.591***		
4	.918	17.844***		
5	.972	19.773***		
6	.870	17.380***		
7	.874	16.000***		
8	.892	16.708***		
9			.598	10.175***
10	.873	17.246***		
11	.860	15.899***		
12	.752	12.580***		
13			.809	15.277***
14			.849	13.713***
15	.877	18.031***		
16	.935	19.060***		
17	.777	14.317***		
18			.835	13.987***
GFI		.956		
AGFI		.926		
CFI		.996		
RMSEA		.026		

Legenda. GFI = *Goodness of Fit Index*; AGFI = *Adjusted Goodness of Fit Index*; CFI = *Comparative Fit Index*; RMSEA = *Root Mean Square Error of Approximation*.

*** Coefficient is significant at .001 level.

Table 5 – Pearson's correlation coefficients between PWE and JP

	Task performance	**Contextual performance**	**Counterproductive work behaviors**
	TP	*CP*	*CWBs*
Malicious envy	.75	−.199**	.364**
Spotting	.133*	−.267**	.176**
PWE	.097	−.234**	.339**

Legenda. TP = *Task performance*; CP = *Contextual performance*; CWB = *Counterproductive work behavior*.

**Correlation coefficient is significant at the .01 level.

*Correlation coefficient is significant at the .05 level.

Table 6 – Simple regression for the relationship between JP and both of PWE and SE

IV	DV	R^2	F	B	T
	Task performance	.009	2.861	.020	1.691
PWE	Contextual performance	.055	17.401	−.091	−4.171**
	Counterproductive behavior	.115	39.057	.090	6.250**
	Task performance	.159	56.994	.235	7.549**
SE	Contextual performance	.118	40.262	−.382	−6.345**
	Counterproductive behavior	.244	19.025	−.185	−4.362**

**Correlation coefficient is significant at the .01 level.

Table 7 – Multiple regression analysis for the relationship between JP and both of PWE and SE

IV	DV	R^2	F	B	T
SE				.234	7.534**
	Task performance	.167	30.074		
PWE				.018	1.677
SE				−.376	−6.432**
	Contextual performance	.169	30.552		
PWE				−.089	−4.301**
SE				−.190	−4.800**
	Counterproductive behavior	.178	32.479		
PWE				.092	6.577**

**Correlation coefficient is significant at the .01 level.

Table 8 – Multiple regression analysis to test the moderating effect of SE in the relationship between PWE and TP

Independent variables	Regression coefficient	*t*-value	R^2	F
Z-PWE	.328	2.022*	.176	21.258**
Z-SE	1.197	7.543**		
Interaction	.253	1.785		

Note. Dependent variable = TP.

**Correlation coefficient is significant at the .01 level.
*Correlation coefficient is significant at the .05 level.

Table 9 – Multiple regression analysis to test the moderating effect of SE in the relationship between PWE and CP

Independent variables	Regression coefficient	t-value	R^2	F
Z-PWE	−1.496	−4.957**	.197	24.526**
Z-SE	−1.918	−6.500**		
Interaction	−.855	−3.245**		

Note. Dependent variable = CP.

**Correlation coefficient is significant at the .01 level.

Table 10 – Multiple regression analysis to test for the moderating effect of SE in the relationship between PWE and CWB

Independent variables	Regression coefficient	t-value	R^2	F
Z-PWE	1.391	6.705**	.182	22.239**
Z-SE	−.977	−4.818**		
Interaction	.231	1.274		

Note. Dependent variable = CWB.

**Correlation coefficient is significant at the .01 level.

Multiple regression indicated that only a significant interaction effect was observed between PWE and SE on CP with a .01 confidence level. Therefore, the third hypothesis is partially sustained.

DISCUSSION

Despite the importance of PWE, the literature cites only a few studies on this topic. In addition, this study is the first to view this aspect from the Egyptian perspective. To address the lack of studies, the current paper presents two objectives, namely, 1) to examine the consequences of PWE on JP and 2) the moderating role of SE in the relationship between PWE and JP.

With regard to the first purpose, results revealed that CP is negatively associated with PWE; TP is positively linked with spotting; and a positive relationship exists between CWBs and PWE. These results are in agreement with those of several studies (e.g., Cohen-Charash & Mueller, 2007; Erebak, 2019; Exline & Lobel, 1999; Khan et al., 2009). In addition, many researchers demonstrated that envied workers experience anxiety and unpleasant emotions when they perceive that they are targets of envious coworkers (Cohen-Charash & Mueller, 2007; Lee et al., 2018; Mosquera et al., 2010; Vecchio, 2005). As a result of perceived envy at the workplace and anxiety, envied persons tend to display reduced work performance and low levels of job engagement and satisfaction (Erebak, 2019; Vecchio, 2005). Furthermore, envied employees experience painful negative emotions because of undesirable social comparisons from coworkers who are less successful (Duffy et al., 2012; Lee et al., 2018).

In addition, individuals noted as targets of envy frequently hide their good fortune and even actively avoid excessive success. Hence, envy has a strong influence on people's work behavior (Van de Ven et al., 2009) and other negative outcomes, such as fear of ill will from others (Mosquera et al., 2010) and lack of a safe space in which to work hard (Lee et al., 2018). The reason underlying this notion is that envied employees may perceive envy from coworkers as a threat to their relationships with other employees and supervisors (e.g., Cohen-Charash & Mueller, 2007; Duffy et al., 2012; Lee et al., 2018) and a hindrance to attaining organizational rewards (Lee et al., 2018). This result can be explained based on COR theory which assumed that persons who perceive themselves as targets of envy

from their coworkers; feel frustrated from organizational context and effect negatively on their performance and increase their counterproductive behaviors (e.g. destroying company property, complaining, doing tasks incorrectly on purpose, gossiping, and misusing privileges) (Khan et al., 2009; Koopmans, 2015; Ramos-Villagrasa et al., 2019). Accordingly, they are more likely to negative consequences (e.g. burnout, psychological distress, material loss) and either could not maintain their resources or achieve new resources (Hobfoll & Schumm, 2009)

With respect to the positive relationship between TP and spotting as a component of PWE, may be explained by the Hawthorne effect (i.e., the observer effect) on worker productivity. Previous studies reported that worker productivity increased constantly throughout the Hawthorne effect. That is, employee performance or change in behavior may improve as a result of feedback and observation (e.g. Hansson & Wigblad, 2006; Kaur, 2012; Oswald, Sherratt & Smith, 2014). Accordingly, employees who perceive that they are targets of envy tend to accomplish their duties as stated in the job description because knowledge of being observed may be considered a threat to tenure, incentives, or relationship with managers (Hansson & Wigblad, 2006).

Furthermore, Khan et al. (2009) found that envy was a strong predictor of CWBs, such as abuse against others and withdrawal behaviors. The study elucidated this relationship in terms of the model proposed by Spector and Fox (2003) the stressor-emotion model of counterproductive behavior, which suggest that CWB is considered a response to situations that arouse emotions at the workplace. Previous scholars stated that CWB is linked to measures of negative emotions (Khan et al., 2009; Miles, Borman, Spector & Fox, 2002; Spector & Fox, 2003). The stressor-emotion model also posited that anger and anxiety resulting from envy are related with such behaviors (Khan et al., 2009). Nevertheless, envied employees distract themselves from the unpleasant feelings caused by envy using withdrawal as a coping strategy (Duffy & Shaw, 2000; Khan et al., 2009).

With respect to the second objective, the current study revealed, however, that the moderating effect of SE was noted only for CP but not for TP and CWB. The study predicted that employees with high levels of SE and who perceived themselves as targets of malicious envy will display decreased CP. In this context, other studies found that envied employees with high levels of SE can respond in a negative manner because they focus on the ways to avoid envy,

which in turn influences their job performance (Tai et al., 2012). Additionally, such individuals invest time and effort thinking about being envied by coworkers instead of using such time and effort to achieve their tasks or succeed in work (Huang et al., 2018; Lee et al., 2018). Additionally, successful employees who perceive themselves as envied do not attempt to volunteer for extra activity or exert much effort to avoid being spotting and watched (Schoeck, 1969; Van de Ven et al., 2009). This result can be interpreted as follows: people who perceive themselves as targets of envy consider envy as a threat to their SE. Hence, they avoid exerting extra effort or volunteering for organizational activities to avoid being spotted and envied.

Limitations and future research

Although the current research contributes to the extant literature on PWE from the Egyptian context, it has seven limitations. First, the sample design of the research (convenience sample) limits the generalization of results. In other words, the findings may not be applicable to all Egyptians employees. Second, the current research overlooked various organizational factors that may exist in the culture of organizations, which may decrease or increase PWE. Future studies can examine the negative outcomes of envy, such as hostility, revenge, turnover, sabotage, and theft, in organizations. Third, the current study did not endeavor to analyze the differences between employees from private and public sectors and years of experience as study variables. Fourth, the study only focused on malicious envy and did not consider all types of workplace envy (i.e., benign, episodic, and dispositional) and their impact on job performance. Fifth, female and male perceived negative feelings (including envy) in a different way, so gender may have a role in feelings of envy and its outcomes at the workplace either in their performance or interpersonal relations. Sixth, social desirability may influence in the subjects' responses

because envy is considered sensitive topic, so observation in such topics may be useful besides the self-report measures. Seventh, cross-sectional data was used in the current study, accordingly, detecting causality is not possible. Consequently, it is argued that perceived workplace envy may result in poor in job performance. Therefore, using longitudinal data may be important to examine the chronological sequence of perceived workplace envy and job performance.

CONCLUSION

Given the prevalence and importance of workplace envy in the Egyptian context, the current study addressed the relationship between the components of PWE and dimensions of job performance, because of the negative and undesirable outcomes of envy especially malicious envy at workplace either the individual or organizational level. Our findings revealed that CP is negatively associated with PWE, whereas TP is positively linked with only one component of envy, namely, spotting. In addition, a positive relationship exists between CWBs and components of PWE. The study found that SE moderated the relationship between PWE and CP. It is suggested, that there are several tactics a manager can use to better control or reduce envy at the workplace. Furthermore, these tactics may help in organizational life through enhancement the relationship between the organization and its members. HR and managers can formulate appropriate interventions for employees who are performing poorly due to PWE or companies may offer regular assessments of PWE among employees to create a safe and comfortable organizational environment. As well as managers and supervisors may overcome prevalence envy through balance in the distribution of job privileges such as, promotions, authorities, incentives and other job resources. Moreover, to promote open communication; managers can encourage their employees to communicate how they feel and to share their envious emotions.

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Effect of autonomy-supportive parenting and teaching on adolescents' educational aspirations: Moderating role of grade level

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♙ ABSTRACT. Il presente studio mira ad esplorare il ruolo predittivo della genitorialità che sostiene l'autonomia e dell'insegnamento a sostegno dell'autonomia sulle aspirazioni educative degli adolescenti. Inoltre, approfondisce la funzione moderatrice della votazione scolastica sulla relazione tra genitorialità di supporto all'autonomia (ASP) e aspirazioni educative degli adolescenti, e insegnamento di supporto all'autonomia (AST) e aspirazioni educative degli adolescenti. Lo studio ha condotto una indagine trasversale reclutando adolescenti di entrambi i sessi (N = 560) di vari istituti educativi privati e pubblici delle città di Wah Cantt, Taxila, Islamabad e Attock in Pakistan. I costrutti sono stati misurati tramite strumenti di autovalutazione in lingua urdu. I risultati dello studio hanno indicato che l'AST risulta un predittore positivo delle aspirazioni educative degli adolescenti. Questo suggerisce che gli adolescenti che sperimentano insegnamenti di supporto all'autonomia abbiano aspirazioni educative più elevate man mano che i loro voti migliorano.

♙ SUMMARY. *The present study aimed to explore the predictive role of autonomy-supportive parenting and autonomy-supportive teaching on adolescents' educational aspirations. Furthermore, this study aimed to explore the moderating role of grade level on the relationship between autonomy-supportive parenting (ASP) and adolescents' educational aspirations, and autonomy-supportive teaching (AST) and adolescents' educational aspirations. The study employed a cross-sectional survey design and purposively recruited adolescents (N = 560) including both boys and girls from various private and government educational institutes of Wah Cantt, Taxila, Islamabad, and Attock cities of Pakistan. The constructs were measured through self-report instruments in the Urdu language. The findings of the study indicated that AST was positive predictor of adolescents' educational aspirations. Findings of binary logistic regression suggested that grade level moderated the relationship between the AST and educational aspiration. Our findings suggest that autonomy-supportive teaching is an important precursors of adolescents' educational aspirations. Adolescents who experience autonomy-supportive teaching are likely to have higher educational aspirations as their grades progress.*

Keywords: *Educational aspirations, Autonomy support, Self-determination theory*

INTRODUCTION

Adolescence is marked by continuous physical, mental, and psychological changes, and one central and stage-salient task of this developmental stage is achieving autonomy (Steinberg, 1990). The period of adolescence is characterized by sudden changes in biological, social and cognitive spheres, and these abrupt changes have deep influences on autonomy development among the adolescents (Collins & Laursen, 2004). Adolescents with autonomy, set up for themselves such aims and actions as control their own lives. Every aspect of the adolescent's performance is positively affected by the autonomy support from their significant others in the social context, autonomy and self-regulation of the individual. Increased autonomy in the adolescence time period might lower the control of the peers and parents over the decision and opinions of adolescents (Daddis, 2011). The lasting relationship between the autonomous behavior, self-determined behavior and strong wholesome relationship with others play a significant role in psychological development and adjustment (Inguglia, Ingoglia, Liga, Coco & Cricchio, 2015).

Although autonomy implies detachment from and lesser reliance on parents (Hill & Holmbeck, 1986), still parents are debatably one of the most significant influencers in an adolescent's life (Song, Bong, Lee & Kim, 2015). Parents may either, encourage and provide opportunities for children to take independent initiatives, or be controlling and prevent them from availing chances to be self-reliant (Grolnick & Pomerantz, 2009). Such socialization practices are pivotal for autonomy development (Holmbeck et al., 1995). Numerous researches have shown a positive relationship between autonomy-supportive parenting (ASP) and better psychological functioning (Soenens et al., 2007) and academic outcomes (Pino-Pasternak & Whitebread, 2010; Pinquart, 2016; Vasquez, Patall, Fong, Corrigan & Pine, 2015).

The phenomenon of adolescent autonomy can be explained in light of the self determination theory (SDT) which posits that being autonomous entails self-governance and taking initiatives. Three types of psychological needs are stated by the SDT: the need for competence, the need for association and the need for autonomy (Deci & Ryan, 1985; Ryan & Deci, 2000). In order to achieve the finest learning, all the three needs require being satisfied as the gratification of these needs give into motivation that eventually encourages students to engage more in educational pursuit.

An important factor necessary for successful pursuit of education is educational aspiration, which is defined as the expectation of an individual about the achievement of educational status in the future. Aspiration is a long-lasting essential psychological aspect of the ability of students to undertake higher education (Pitre, 2006). Aspirations serve as an initial level to the goal accomplishment, it drives a person to perform goal-oriented actions and emphasize to improve the present status and keep on progressing (Hurlock, 2005). However, being brought up by psychologically controlling parents that are not autonomy supportive, the adolescents' psychological development is expected to be inhibited (Grolnick et al., 1997). On the other hand when primary social figures tend to be supportive of the adolescents' needs and provide opportunity for independence and choices, development of autonomy is facilitated.

Although a substantial amount of research has been conducted on parental autonomy support, much of these studies have been conducted in western cultures. It is known that unlike western individualistic cultures, the collectivistic cultures, such as in Pakistan, prioritize interdependence and respect for social hierarchy over individuality (Markus & Kitayama, 1991). Universally, a strong bond with the family is instrumental in the acquisition of social adequacy for the adolescents; however, in the countries that adhere to a collectivistic culture, the reliance of adolescents on their family is especially strong. Here these young people in order to attain greater parental support prefer meeting halfway between being fully autonomous and not autonomous at all (Kovacheva, 2006).

Still, researchers vary in their opinion regarding the difference in effect of parental autonomy support of adolescent's functioning across cultures (Wang et al. 2007). Exploration of this phenomenon in different cultures is scarce and thus limits its complete understanding. Fuligni (1998) argues that it is possible that children living in a collectivistic culture may expect and desire less autonomy than those that live in individualistic cultures, still upon reaching adolescence they will start to seek individuality as the need for autonomy is salient and universal. Family being the primary social support system of all adolescents, plays a crucial part autonomy development (Kagitcibasi, 2005), regardless of cultural variations.

A significant gap in literature concerning adolescent's autonomy support is the lack of exploration of support from significant social figures in the adolescent's interpersonal

environment other than parents, like teachers (Soenens & Vansteenkiste, 2005). Some research has suggested the influence of teachers on behavior of the adolescent through imperative or self-sufficiency contributing actions (Broeckelman-Post et al., 2016). Studying autonomy support outside family contexts can shed more light onto this phenomenon (Yan, Han, Tang & Zhang, 2017). It has been suggested by studies that along with parents, teachers also influence the behavior of the adolescent through imperative or self-sufficiency contributing actions (Broeckelman-Post et al., 2016). The concept of autonomy-supportive teaching (AST) has been taken from the self-determination theory where such attitude is adopted by the teacher where a student is listened to and is offered choices which ultimately promotes autonomy development (Nunez & Leon, 2015).

According to the research, satisfaction of inner needs; mostly through supportive role of parents and teachers, directs positive consequences that are; higher inner motivation and self-regulation towards learning (Soenens & Vansteenkiste, 2005). Helpful and participative parenting and teaching improve personal, social and academic development and achievement of adolescents (Harris & Goodall, 2008; Jeynes, 2007).

The relationship between a teacher and a student can promote an autonomy supportive learning environment. Such an atmosphere for learning encourages student's preferred activities and interests leading to better educational outcomes (Reeve, Jang, Carrell, Jeon & Barch, 2004). Studies suggest the differences between controlling and autonomy supportive classroom settings by indicating that autonomy supportive atmosphere prompts better results such as academic dedication and achievement, psychological health, and inner motivation, however, coercive, and controlled classroom settings may result in restrained cognition and reduced motivation where the correct behavior is the consequence of external rewards, pressures, and punishment (Ciani, Middleton, Summers & Sheldon, 2010; Shih, 2008).

According to SDT, students may feel encouraged to follow their goals with greater ease when they perceive that teachers are supportive in the pursuit of students' preferred goals. In the presence of choice and substitutions, students are encouraged to accomplish their aspired motives (Katz & Assor, 2007). According SDT, for the finest learning, assistance and order structured by the teacher is vital (Reeve, 2009). The readiness of students to follow and accept the

structure is higher in the considerate and non-coercive context where the students' viewpoint is given respect. The aspirations also begin to appear at an exceptionally early age (Herting & Blackhurst, 2000).

Support system including significant others of the adolescents, sets for them the future expectations to achieve, through the behavior and feedback of the significant others. For instance, if teachers and parents set high and tough prospective goals for the adolescent and assist and boost accordingly, adolescents are more likely to select high aspirations. The children possess high confidence regarding academic potential when higher aspirations are set by their significant others. Currently, in Pakistan, literature is quite scarce on the association between autonomy support and academic aspiration among adolescents. The current study aims to explore the effect of the ASP and AST on adolescents' educational aspirations. Particularly, this study will explore if the ASP and AST will improve adolescent's educational aspirations.

For the preparation and backup of productive and positive change in the learning end product, schools may play a preliminary central role systematically by identifying and backing each student's developmental goals. Current research is useful for schools and teachers in providing appropriate and approachable opportunities, guidance, and structures in the central time period of schooling thus, schools and teachers may support students to discover and set their academic expectations. Teachers may assist students by clarifying the aims and inspirations of the students as identifying the purpose and direction of education is essential even at the beginning of secondary education.

Apart from autonomy supportive social relationships, another potential factor that can influence adolescent's educational aspiration is grade level. Pertinent literature reveals that students of secondary and higher secondary classes are more sensitive to their educational aspirations as these are the grades which lay down the foundation of their future career. According to Marsh, Martin and Jackson (2010), the time period of matriculation for adolescents is critical as a decision about the future requires to be held after the school is completed. The viewpoints on the self, expectations, and behavior of the individual ensure the future success or failure. Adolescents at a senior secondary level may become more conscious about their career and educational choices. Mau and Bikos (2000) found that occupational and educational aspirations were at their peak among students of secondary

and higher secondary education that is, 9th, 10th, and 11th, 12th class, respectively. A study by George (2014) found that students of senior secondary classes have a moderate level of educational aspirations, suggesting that the students at this level may need to have higher parental and teacher autonomy support as well as motivation to increase their educational aspirations.

In light of the above mentioned literature and rationale the present study is designed to test the following hypotheses.

H_1: autonomy-supportive parenting and teaching will positively predict adolescents' educational aspirations.

H_2: the grade level will moderate the relationship between autonomy-supportive parenting, autonomy-supportive teaching, and adolescents' educational aspirations.

METHOD

Participants

A sample of ($N = 560$) students of secondary and higher secondary schools of Wah Cantt, Taxila, Islamabad, and Attock cities was recruited for the present study. The sample included 255 boys and 305 girls from both private sector ($n = 332$) and public sector ($n = 228$) schools. Students of 9th-12th grade were recruited through purposive sampling technique. The participants' age ranged between 13 and 18 years ($M = 16.36$ years, $SD = 1.38$ years). Adolescents living with single parents or without parents were not included in the study.

Instruments

Perception of Parental Autonomy Support. Urdu version (Naz & Gul, 2015) of *Perception of Parent Scale* (*POPS*; Robbins, 1994) was utilized to measure students' perceptions regarding their mothers' and fathers' stipulation of autonomy support. POPS is 18 items Likert-type scale with responses varying between 5 (very true of me) to 1 (not true of me at all). High scores indicate a high degree of autonomy-supportive parenting. The scale was found reliable with Cronbach alpha ranging from .71 to .86 (Chipman, Olson, Klein, Hart & Robinson, 2000; Robinson, Mandelco, Olsen & Hart, 1995). For the present study, the coefficient of internal consistency was quite high ($\alpha = .83$).

Learning Climate Questionnaire. Urdu version (Naz, 2015) of the short form of LCQ (Williams & Deci, 1996) consisting of 6 items was used, for the purpose of measuring the extent of students' autonomy perception in the class. Students' responses were recorded on a 5-point Likert type agreement scale with responses varying between 5 (very true of me) to 1 (not true of me at all). High scores indicate high degrees of autonomy-supportive teaching. Cronbach alpha of LCQ reported in the previous studies was .96 (Williams & Deci, 1996) and .93 (Black & Deci, 2000). The LCQ demonstrated excellent degree of internal consistency in the present study ($\alpha = .93$).

Educational aspirations. To examine the educational aspirations of the students a self-report item was added in the demographic section of the questionnaires intended for the current study: "In future, how much education would you like to obtain?". Numerous authors have previously used a single item to measure educational aspirations among educational populations (Khattab, 2015; Swell and Shah, 1968; Widlund, Tuominen & Korhonen, 2018). The response was given as: 1. = Vocational diploma/intermediate, 2. = Graduation/BA/BSc/B-Tech, 3. = Master's degree/BS/MBBS/or equivalent., 4. = M.Phil/MS, and 5. = PhD/specialization. In medical, to choose one of the mentioned categories. The scores were additionally coded as binary variables, to differentiate between students that aspired higher and those who did not. Each student was assigned to one of two levels of academic aspiration based on their chosen level of educational qualification. The first two categories of qualifications (vocational diploma/intermediate and graduation/BA/BSc/B-Tech) were coded as low educational aspiration and given a score of 0. Last three categories of qualifications (Master's degree/BS/MBBS/or equivalent, M.Phil/MS, and PhD) were coded as high educational aspiration and given a score of 1.

Procedure

Participants were approached individually and were briefed about the purpose of the study. They were assured that the information they provided would be kept confidential. Written informed consent was signed by the participants and they were advised to read and respond each statement carefully. Finally, participants were thanked and appreciated for their participation.

RESULTS

Table 1 depicted the reliability coefficients, descriptive statistics and correlation coefficients of the focal constructs for the present study. Results revealed that all the scales had high levels of internal consistency. Pearson correlation coefficients revealed that relationships among variables were in the predicted directions. Educational aspirations of adolescents increased with an increase in ASP and AST.

For the prediction of educational aspirations, logistic regression was carried out using autonomy-supportive parenting and teaching as predictors. School system (public sector vs private sector schools) and school medium (English *vs* Urdu medium of instructions) were tested as control variables (see Table 2). These control variables had statistically nonsignificant impact on main variables. Testing the full model against the constant came out to be significant, which indicated that the predictors consistently discriminate between students having high degree vs. low degree of educational aspirations ($\chi^2 = 45.97$, $p = .001$, $df = 8$). The value of .42 for the Nagelkerke's R^2 specified a relatively strong association between the outcome (groups) and the predictor (AST). The overall accuracy in the prediction remained at 78.6% (75% and 83.4 % for low and high educational aspirations, respectively).

For the prediction of educational aspirations, logistic regression was carried out using AST and ASP as predictors and grade level was used as moderator. School system and school medium were tested as control variables, which had statistically nonsignificant impact on main variables (see Table 3). The full model was tested against a constant and the significant results suggested that the predictors (as a set) reliably distinguished between adolescents with low and high educational aspirations ($\chi^2 = 42.04$, $df = 7$, $p = .001$). Nagelkerke's R^2 (.12) suggested a pretty strong association between the outcome and the predictor (AST). Findings showed that class level moderated the relationship of the AST and educational aspiration. However, the class level did not moderate between ASP and educational aspirations.

Figure 1 illustrates moderating role of class level on the association between educational aspirations and AST.

Table 1 – Pearson correlations, alpha coefficients, and descriptive statistics of variables (N = 560)

Variables	K	α	*M*	*SD*	1	2	3
ASP	18	.80	63.16	12.07	–	.683**	.607**
AST	6	.82	19.62	5.39	–	–	.544**
Educational aspirations	–	–	–	–	–	–	–

Legenda. ASP = autonomy-supportive parenting; AST = autonomy-supportive teaching.

Note. Educational aspiration was coded as 0 = low, 1 = high.

**p<.01

**Table 2** – Autonomy-supportive parenting and teaching as predictors of educational aspirations (N = 560)

Predictors	*B*	*SE*	*OR*	95% CI for *OR*		Wald statistic	*p*
				LL	**UL**		
Constant	2.32	1.62	.11	–	–	2.07	.15
School system	.30	.21	1.35	.48	11.82	1.96	.16
School medium	.87	.82	2.38	.89	2.04	1.12	.29
ASP	.06	.11	.94	.81	1.15	.37	.54
AST	1.45	.13	4.28	3.32	5.50	127.68	.00

$$-2 \text{ LL} = 553.02$$

$$R^2 \text{ (Cox \& Snell)} = .32; R^2 \text{ (Nagelkerke)} = .42$$

$$\chi^2 (8) = 45.97, (p = .001)$$

Legenda. ASP = autonomy-supportive parenting, AST = autonomy-supportive teaching.

Figure 1 – Moderating role of grade between autonomy-supportive teaching and educational aspirations
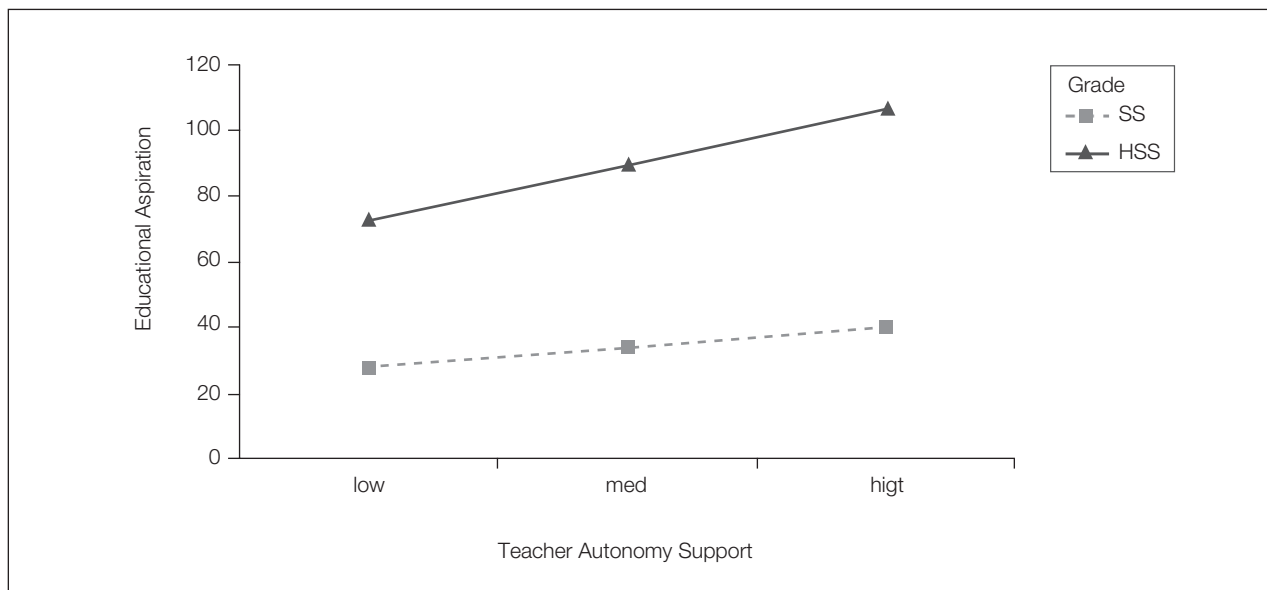
Legenda. SS = Secondary school (9th and 10th grades); HSS = Higher secondary school (11th and 12th grades).

The lines in Figure 1 elucidate that the difference between students of 9th, 10th classes, and students of 11th, 12th classes in the association between AST and educational aspirations is significant. Students of higher secondary classes (11th and 12th grades) demonstrate stronger aspirations with increasing AST as compared to their counterparts from secondary classes (9th and 10th grades).

In a nutshell, our findings revealed that that AST positively predicted adolescents' educational aspirations. Results of binary logistic regression indicated that grade level moderated the relationship between the AST and educational aspiration.

DISCUSSION

The primary purpose of the present study was to study the construct of autonomy support in Pakistan. Among collectivistic cultures, individuals remain committed to relationships with each other throughout their lives and strive for unconditional fidelity (Hofstede, 2001). The development of an independent self is marked by the psychological detachment from parents. In contrast, the individualistic western societies have examined the significance of autonomy offered by the parents for the usual development. Despite that, the construct of ASP should be validated outside western societies for two important reasons. Firstly, the unique social concerns from the standpoint of self-sufficiency are usually confused with the concept of autonomy. Moreover, autonomy reflects an individual's ability to coordinate himself/herself with societal norms (Ryan & Deci, 2008). Lack of understanding of essential values and rules, no matter whether they have been shaped by collectivistic or individualistic cultures may lead to poor self-governance. This perspective, the issues of how smoothly one engages in the prevalent social customs and routines is relevant to all social spheres.

Being a culture-specific value, autonomy seems to be more relevant to the individualistic societies (Markus & Kitayama, 2003), therefore, in Eastern countries, the literature on associations of autonomy-supportive parenting and parental control with adolescent's adjustment and well-being is quite scarce. Autonomy as well as autonomy-supportive parenting practices may espouse various forms in order to remain in line with the cultural milieu. Thus, autonomy could have been conceived as a vital human need, despite the reality that different practices, which may ignore or satiate this need

may get transformed across different cultures. Therefore, autonomy is considered as a basic human need, although the practices that demote or promote autonomy could have been different across cultures (Sheldon, Ryan, Deci & Kasser, 2004). During the whole adolescence period, parents offer support for vital decision making, dispositional and personal assets, and teachers are instrumental in the provision of support for the development of educational accomplishment, insight, and academic attitude.

AST involves searching for approaches to nurture, maintain, and harness students' inherent motivation for their engagement in classrooms (Reeve, 2006). On the other hand, parents who support autonomy for their children listen to their teen's viewpoint, offer a justification for the assigned activity, and offer alternatives for their teens to choose from. Emerging research on autonomy support demonstrates that it is a globally acknowledged need and psychosocial adjustment of adolescents could have substantially been influenced by parental control and autonomy support (Tamis-LeMonda et al., 2008).

The findings of the current research suggested that AST was positive predictor of adolescents' educational aspirations (see Table 2). These findings are in tune with the earlier research as studies suggests that experiencing and studying in an autonomy supportive environment may have a positive influence on adolescents' scholastic performance and academic aspirations (Vansteenkiste, Zhou, Lens & Soenens, 2005). Similarly, various desirable academic outcomes such as students' school adjustment improves with teachers' support (Cadima, Leal & Burchinal, 2010; Reddy, Rhodes & Mulhall, 2003). Furthermore, research suggests that by reducing the sense of self-blame and humiliation and boosting the sense of self-determination, teachers may cultivate an autonomy supportive environment, which may encourage students to develop their autonomous functioning and capabilities in their studies. Likewise, Geckova, Tavel, Dijk, Abel and Reijneveld (2010) indicated that both school and family could inspire adolescents' educational aspirations.

Findings from the binary logistic regression (see Table 3) indicated that grade was a significant moderator of the positive association between AST and educational aspiration. However, the grade did not moderate between educational aspirations and ASP. The findings are consistent with the pertinent literature, which suggests that teachers' provision of autonomy in school-related activities increases primary school students' academic performance (Wang &

Table 3 – Grade, autonomy-supportive parenting, and teaching as predictors of educational aspirations (N = 560)

Predictors	*B*	*SE*	*OR*	95% CI for *OR*		Wald statistic	*p*
				LL	UL		
Constant	.06	1.45	1.07	–	–	.00	.96
School system	−.31	.24	.73	.46	1.18	1.61	.20
School medium	.95	.75	2.59	.60	11.16	1.63	.20
ASP	−.05	.17	.95	.67	1.33	.09	.76
AST	.62	.12	1.86	1.47	2.35	26.67	.00
Grade	−.41	.24	.66	.41	1.06	2.99	.08
ASP × grade	.28	.24	1.33	.83	2.11	1.43	.23
AST × grade	−.52	.16	.59	.43	.81	10.41	.00

-2 LL = 511.07

R^2 (Cox & Snell) = .07; R^2 (Nagelkerke) = .12

χ^2 (7) = 42.04 (*p* = .001)

Legenda. ASP = autonomy-supportive parenting, AST = autonomy-supportive teaching.

Holcombe, 2010). Figure 1 further suggested that intermediate students' (11th and 12th grades) educational aspirations were more strongly influenced by AST as compared to the educational aspirations of students of secondary schools (9th and 10th grades). These results of the current research are in consonance with those of previous studies where, for instance, educational aspirations positively predicted the completion of advance studies (Kay, Shane & Heckhausen, 2016). This is so because after crossing their threshold of adolescence, students develop more pragmatic insight into their future goals and identity. Over time, the enhanced availability

of information regarding postsecondary occupations and education, these future aspirations may transform into more practical objectives (Lapan, Tucker, Kim & Kosciulek, 2003).

Implications of the study

The current investigation may help better understand AST, ASP, and academic aspirations among students of secondary and higher secondary schools from the indigenous Pakistani perspective and it validates

the findings from Western culture. The results of the present research have significant implications for school counselors, parents, teachers, and educationists. Various plans for the provision of counseling and motivation should be offered to the students so that they could maintain an optimal level of educational aspirations. The importance of student's high and firm educational aspirations should be appreciated by their parents and teachers. Special counseling sessions should be held at schools and colleges for boosting the educational aspirations and addressing the family and academic problems of students with low academic aspirations. The results of the present study may help develop new teaching policies to empower adolescents/students in becoming autonomous learners. It may focus on the roles of teachers/parents and students as facilitators and learners respectively.

Limitations and suggestions

Being correlational research, the findings of the present study might not provide causal interpretations. The data of the present study is based on a cross-sectional design, which limits the scope of knowledge. A longitudinal design in the future may provide greater insight regarding parenting practices for autonomy.

An important limitation during the present study was the presence of the potential effect of a grouping of students in terms of classes and various educational institutions. Students of a particular school and at a more refined level of a particular class may share a specific learning culture that might have shaped their perceptions of teachers' autonomy support and educational aspirations. Furthermore, other demographics such as teachers' and parents' socioeconomic status, educational level, family structure, stage of the family life cycle may also be relevant to the perceived autonomy supportiveness and educational aspirations of the students.

The present study only centered around students' perspectives. Future research should be extended to explore not only the perceived autonomy support on the part of the students but may also incorporate teachers' and parents' self-report measures of autonomy supportiveness. Such dyadic data may be more fruitful for better understanding the dynamic interplay betweenautonomy-supportive parenting, teaching, and educational aspirations.

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Construction and validation of Life Regrets Scale for elderly people in Pakistani culture

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♟ ABSTRACT. Questo studio mira alla costruzione e alla validazione della *Life Regrets Scale* per gli anziani nella cultura pakistana. Nella prima fase dello Studio I, è stato sviluppato un pool di item iniziale basati sulla teoria dello sviluppo psicosociale di Erikson e sulle risposte date da un campione di anziani del Pakistan ad alcune interviste semi-strutturate. Nella fase II invece è stato condotto uno studio pilota. Dopo aver verificato la validità di contenuto, nella fase III sono state determinate la validità fattoriale e la coerenza interna utilizzando un campione di 506 partecipanti, inclusi anziani di sesso maschile (*n* = 317) e femminile (*n* = 189) con un'età minima di 60 anni. L'analisi fattoriale ha rivelato una soluzione a tre fattori che spiegava la varianza cumulativa del 32.63% con un'alfa di Cronbach pari a .92. I fattori sono stati denominati rispettivamente rimpianti familiari, rimpianti religiosi e rimpianti relativi alla crescita personale. Inoltre, nello Studio II, l'analisi fattoriale confermativa ha convalidato la struttura a tre fattori con un eccellente indice di model fit. Lo Studio III ha rivelato una correlazione positiva significativa della *Life Regrets Scale* con la depressione e l'ansia per la morte mentre ha mostrato avere una significativa correlazione negativa con l'integrità dell'io e la qualità della vita percepita. I risultati dello Studio III hanno fornito una forte evidenza della validità del costrutto della *Life Regrets Scale*.

♟ SUMMARY. The present study aimed at construction and validation of Life Regrets Scale for elderly people in Pakistan culture. In the first phase of Study I, an initial item pool was developed on the basis of Erikson's theory of psychosocial development and semi structured interviews from old people of Pakistan. A pilot study was carried out in phase II. After ensuring the content validity, factorial validity, and internal consistency were determined in phase III on a sample of 506 participants including both older men (n = 317) and women (n = 189) with a minimum age of 60. Factor analysis revealed a three factor solution that accounted for 32.63% cumulative variance with .92 alpha reliability. Factors were named, familial regrets, religious regrets, and personal growth related regrets respectively. Moreover, In Study II, confirmatory factor analysis validated the three factor structure with excellent model fit indices. Study III revealed a significant positive correlation of the Life Regrets Scale with depression and death anxiety while Life Regrets Scale appeared to be a significant negative correlate of ego integrity and quality of life. Findings of the Study III provided strong evidence for the construct validity of the Life Regrets Scale.

Keywords: *Life regrets, Elderly population, Construct validity, Reliability*

INTRODUCTION

Regret is considered to be one of the most commonly experienced emotions in everyday life. Regrets are frequently discussed with relevance to older adults because after passing their life they look at their past and evaluate their decisions, choices and relationships (Jokisaari, 2004; Newall, Chipperfield, Daniels, Hladkyj & Perry, 2009) According to Erikson (1959), positive evaluation of past results in life satisfaction and a feeling of integrity among older adults. On the other hand, if people feel that many decisions taken by them were wrong and their interpersonal relationships were also disturbed, they may experience remorse over their decisions. Resultantly, regrets dominate the lives of old people. These regretful thoughts lead to the feeling of despair.

Regrets are defined as feelings of guilt and remorse which emerge when people fail to obtain their preset goals. Regret is marked with painful thoughts and it is overwhelmed with the emotions of feeling sorry for misfortunes, losses, limitations, mistakes, and transgressions (Landman, 1993). Cognitive processes such as counterfactual thinking are usually involved in the experience of regrets, while people think of "what might have been" if they had chosen something different or made another decision (Van Dijk & Zeelenberg, 2005). These thoughts are mostly related to their education, work, marriage, and family etc. (Roese et.al., 2009).

A previous study shows that an awareness of the loss of opportunities is painful in older age and it produces severe regrets (Beike, Markman & Karadogan, 2009). Literature indicates that there are two most common types of regrets; regrets of action and regrets of inaction. According to Roese (2005), regrets for actions and inaction can be described as wishing that you had not done something you did and wishing you did do something you did not do respectively. Gilovich and colleagues (Gilovich, Wang, Regan & Nishina, 2003) carried out research on the difference of action and inaction regret between individualistic and collectivistic cultures. They demonstrated that individuals belonging to collectivist culture might experience fewer regrets of inaction and greater regrets of action. While individuals as part of individualist culture might experience more long-term regrets of inaction than regrets of action. Another study conducted on regrets described that people mostly regret about "what they could have done" rather than "what they did wrong" in their lives. This study indicated that people have

greater regret of inactions than actions that haunt them for a long period (MacLellan, 2018).

Literature shows that every culture has different grounds of regrets. People feel regrets in various situations and the intensity of regrets varies depending on their social and cultural context. For instance, researchers described that Americans feel more regret in self-situations while Japanese experience more regret in interpersonal situations (Komiya, Miyamoto, Watabe & Kusumi, 2010). Research conducted on the Pakistani population reflected that interpersonal and religious regrets are being strongly experienced by elderly people (Ghayas & Batool, 2016). Another psychological research conducted on life regrets and aging showed that regardless of culture, regrets are mostly caused by negative emotions associated with troubling past decisions. At older age people analyze their whole life and feel remorseful about the wrong choices and decisions they have made for themselves and their family (Tassone, Reed & Carstensen, 2019). McKee and colleagues (McKee et al., 2005) conducted research on the British old people and they concluded that regrets of old age were found to be related to psychological issues. Jokisaari (2004) conducted research on the old people of Finland and he revealed that old people experience more work and relationship related regrets as compared to other regrets.

The nature of life regrets vary depending upon a person's age and gender. Younger adults tend to experience fewer regrets as they are more active and ambitious. They typically look for better opportunities. They use different ways to undo the consequences of regretted actions. On the other hand, older people experience more intense regrets because they perceive less opportunity to compensate for the negative outcome of regretted actions. So the intensity of regrets increases with age which causes a detriment in quality of life (Wrosch & Heckhausen, 2002). Older adults recall positive events: good times with their friends and family and avoid thinking about negative events (Magai, 2008). Gender differences also bear upon how regret is experienced. A study describes that unresolved past problems such as regrets may negatively affect women's lives throughout middle age and beyond (Jokisaari, 2004). A survey conducted on men and women demonstrated that overall, 44% of women reported romantic regrets while just 19% of men experienced romantic regrets. These findings depict that men have a greater tendency to replace the lost relationship quickly with new people. This study also points out that people who are not in a current relationship, understandably, experience greater

regrets about past relationships (Ambreen & Samer, 2015).

A lot of researches have been conducted on life regrets and some scales are developed on regrets of different populations (Buchanan, Summerville, Lehmann & Reb, 2016; Pethtel, 2012; Tomer & Eliason, 2005). All these scales were developed for different cultures and validated on different age groups. A previous qualitative study conducted by Ghayas and Batool (2016) provided evidence that there is a certain type of regrets which are unique to our culture and which have not yet been reported by any other study.

Considering the importance of regrets in old age, the current study was undertaken to develop a scale specifically for Pakistani elderly people. Though various types of scales have already been developed for various age groups of other cultures but no scale was found completely suitable for Pakistani elderly people in terms of cultural relevance. Furthermore, this scale was meant to measure the regrets of the only older population as already existing scales were devised for a wide age range. This study was designed to get a clear picture about the regrets that are directly and indirectly influencing the mental health of old population in Pakistan.

METHOD

Study I comprised three phases. An initial pool of items was generated in phase I and psychometric cleansing of items were ascertained through a pilot study in phase II while selected items were administered on 506 participants (older men and women) in phase III. The data was statistically analyzed to assess the psychometric properties of *Life Regrets Scale*. Factorial validity of the scale was also assessed. Item total correlation and alpha reliability was determined. In Study II, confirmatory factor analysis was carried out on an independent sample of two hundred elderly people to confirm the factor structure of the newly developed life regret scale. Study III is an independent study designed to check the relationship of life regrets with relevant correlates in order to establish the construct validity of the scale.

Study I: Development of Life Regrets Scale

– *Phase I.* In phase I, an item pool was generated. Initially, literature review and expert opinion were consulted.

Secondly semistructured interviews with older adults (15 males and 15 females, age range 60 to 80 years) were conducted. Older adults were asked about their regrets and about their past life (e.g. "What comes in your mind when you think about your past life", "If you will be able to go back in your past then what type of changes you will bring in your life"). On the basis of literature review, expert opinion and data generated through semistructured interviews, an item pool was generated in the Urdu language. Originally developed 74 items (based on literature and public opinion obtained through interviews) that sampled the domain of life regrets were pooled up. Seventy four items scale was given to six experts (2 lecturers and 4 assistant professors of Psychology Department) for a critical item review. Deletion of certain items was suggested by them. They also added some items. Some of them were rephrased and some others were deleted. In order to ensure the clarity of language and face validity of statements, the item pool was presented to a committee comprising 4 judges (1 associate professor, 1 assistant professor, and 2 lecturers of Department of Psychology). Through consensus, the 84 items scale was developed on the basis of selection criteria. Initially, independent judgments were taken, and then items were finalized in a form of a committee approach. There was complete consensus about the items because items in the scale were having excellent content and face validity. The sequence of items was shuffled to arrange the items in a general to the specific order in terms of content. Finally, the selected items were written in the form of scale. The response format of life regrets scale was decided to be 5 point Likert type such as 1 = never , 2 = a little, 3 = sometimes, 4 = very often to 5 = always. In order to reduce the response bias, 5 items were negatively phrased.

– *Phase II: Pilot study.* A pilot study was conducted to ascertain the psychometric properties of 84 items life regrets scale. The purpose of the pilot study was also to exclude the unclear, ambiguous, and overlapping statements and to ensure the understandability and accuracy of items in the scale.

Sample. Sample of the study comprised 90 participants which included both males (n = 49) and females (n = 41). The age of sample ranged between 60 to 82 years (M = 65.51, SD = 6.06).

Instrument. Initially developed 84 items scale was used in pilot study which was scrutinized by a committee of researchers and psychologists.

Procedure. The topic of the research was reviewed and approved by the Internal Review Board of Department of Psychology. The participants of the study were approached at different venues. They were briefed regarding the purpose of study. Keeping in view the ethical considerations, participants were ensured that their information will be kept confidential. After taking informed consent from participants, the questionnaires were distributed with written instructions among the willing participants. It took about 20-25 minutes to complete responses on scale. Their queries regarding items were clarified. Interestingly participants took interest in the test administration process. In the end, participants were thanked for their cooperation.

Results. Viability of the items in the *Life Regrets Scale* was examined through a pilot study. The final number of items for factor analysis was selected. 7 items (2, 3, 4, 5, 11, 27 and 38) out of 84 were excluded due to non-normality. Responses on these seven items were similar across all the participants therefore these items were not able to make difference among participants therefore it was decided to remove these items. According to Gregory (2014), only those items should be retained that can make difference among participants if all participants are responding in an almost similar way then this type of item should be removed. Eight items (6, 7, 8, 28, 31, 40, 45 and 48) were deleted due to negative correlation and six out of these eight items were negatively phrased. The reason behind negative correlation may be ambiguous phrasing and difficult wording of items. Nine items (34, 35, 46, 56, 63, 65, 67, 69 and 73) were removed due to criticism by participants as participants felt offensive towards items related to past immoral acts. Some items were emotionally loaded and some were socially desirable and others were not clear to older adults. Sixty items were selected for further factor analysis.

– *Phase-III: Dimensionality and reliability of Life Regrets Scale.* In order to ensure the final structure of *Life Regrets Scale*, factor analysis was conducted.

Sample. Sample of the study comprised 506 older adults including males ($n = 317$) and females ($n = 189$). The data was collected by using a convenient sampling technique. The literacy rate of elderly Pakistani females is very low as compare to males therefore equal representation of males and females was not possible. Age range of the sample was 60 to 96 years ($M = 64.22$, $SD = 6.72$).

Education of participants was also categorized into 3 levels (secondary or less than, intermediate, graduate, and above).

Factor analysis. After try out, 60 items were retained and found suitable to run factor analysis. Exploratory factor analysis (EFA) was carried out on the sample of 506 participants through principle axis factoring by using the oblique rotation method. Tabachnick and Fidell (2007) stated that the best way to choose from the orthogonal or oblique rotation method is to run initially oblique rotation. If results reveal that factors are correlated with each other then it is enough evidence to warrant oblique rotation. Therefore oblique rotation method (direct oblimin) was used. Promax is considered a quick method as compare to direct oblimin but according to Kim and Mueller (1978) direct oblimin provides a more simple structure and beginners should select direct oblimin as compare to Promax. As a result of analysis three factors were established which were clear, well defined, interpretable and theoretically consistent.

Results. Table 1 shows the result of principal axis factoring with oblique method; three well defined factors are recognized. Items with .45 and more factor loadings that were not loaded on two or more than two factors were retained. Items with loading .45 or more than .45 on two or more factors were discarded and those items with less than .45 loading on all factors were also not retained. In order to finalize the number of factors, multiple criteria were used. Firstly results revealed that three factors had an eigenvalue >1. According to the Kaiser criterion, eigenvalues is a good criterion for determining a factor. If eigenvalues is greater than one, we should consider that a factor and if eigenvalues are less than one, then we should not consider that a factor. The scree plot demonstrated inflection at four factors. Therefore, in accordance with the Kaiser criterion of factor extraction, we retained three factors (total explained variance was 32.63%): moreover, it was considered that there must be at least three items in one factor (Marsh, Hau, Balla & Grayson, 1998; Robinson, 2017). The final factor structure was interpreted keeping in view the magnitude of factor loading and the theoretical relevance of the items to the respective factors. Keeping in view the content validity, 36 items were retained and alpha reliability of life regrets scale was found to be excellent ($\alpha = .92$).

Retained factors were named as familial regrets, religious regrets and personal growth related regrets.

Table 1 – The factor loading of 36 items on Life Regrets Scale and on three factor solution (N = 506)

		Factors		
Sr.	Item	I Familial regrets	II Religious regrets	III Personal growth related regrets
1	1	**.46**	.16	.17
2	2	**.49**	.14	.14
3	3	**.52**	.06	.18
4	4	**.49**	.17	.21
5	5	**.53**	.27	.27
6	6	**.57**	.28	.21
7	14	**.52**	.14	.28
8	24	**.70**	.15	.23
9	26	**.66**	.24	.30
10	29	**.61**	.19	−.12
11	32	**.59**	.30	.23
12	33	**.67**	.29	−.36
13	34	**.61**	.30	.23
14	7	.30	**.72**	.27
15	8	.20	**.70**	.29
16	9	.31	**.70**	.32
17	10	.25	**.71**	.25
18	11	.32	**.63**	.30
19	12	.18	**.69**	.33
20	13	.23	**.72**	.16
21	28	.34	**.60**	−.14
22	15	.18	.31	**.46**
23	16	.23	.06	**.46**
24	17	.16	.15	**.47**
25	18	.30	.22	**.52**
26	19	.24	.34	**.57**
27	20	.22	.20	**.57**
28	21	.31	.23	**.53**
29	22	.34	.32	**.54**
30	23	.11	.31	**.57**
31	25	.27	.32	**.61**
32	27	.32	.26	**.57**
33	30	.28	.31	**.50**
34	31	.37	.21	**.59**
35	35	.33	.19	**.51**
36	36	.29	.22	**.53**
Eigenvalues		20.30	3.96	2.77
% of variance explained		25.53	4.37	2.72
Cumulative variance		25.53	29.90	32.63

Study II: Confirmatory factor analysis

Confirmatory factor analysis was carried out on an independent sample of elderly people to verify the factor structure of the newly developed *Life Regrets Scale*.

Objectives

To verify the factor structure obtained through exploratory factor analysis.

Sample

Sample of the study comprised 200 participants, which included both males (n = 117) and females (n = 83). The age of sample ranged between 60 to 82 years (M = 65.51, SD = 6.06).

Instrument

Thirty six items scale selected on the basis of EFA, was used in this study.

Procedure

The participants of the study were approached at different venues and they were informed about the purpose of the study. After taking informed consent from participants, the questionnaires were distributed with written instructions among the willing participants. The scales were handed over and posted to a sample of 250 older adults. It took about 20-25 minutes to complete responses on a scale. Participants returned questionnaires by hand and some of them returned through the post. Some of the questionnaires were not returned by participants. 208 out of 250 (83%) forms were returned, while 200 were found suitable for study. Eight questionnaires were eliminated by the researcher because of incomplete and random responses.

Table 2 and Figure 1 show the findings of factor loadings and model fit indices of CFA for *Life Regrets Scale*. The maximum likelihood extraction method was used to estimate the parameters and the fit indices of the model. Initially, factor analysis was carried out on single, two, and three factor structure. On the basis of initial criteria (i.e., item loading >.45), only the three factor structure model showed a good fit to the data with chi square 1233.5 (df = 586), CFI = .91, GFI = .91 and RMSEA = .04. The value of CFI and GFI is closer to 1 and value of RMSEA is closer to 0 which indicates good model fit. Though non-significant value of chi square is required for CFA but in social sciences, for large samples the chi square value will nearly always be significant, so it is suggested to divide the chi square value by degrees of freedom and it is supposed that a model with chi square/df less than three is good (Gable & Wolf, 1993; Hatcher, 1994;).The ratio of chi square and df for CFA was 2.10: it is less than 3 which represents a good model fit as it is falling in the acceptable range. The final model contains 36 items presenting a good model fit with 13 items in familial regrets, 8 in religious regrets and 15 items in personal growth and related regrets. The factor loadings ranged from .38 to .76. After CFA thirty six items were retained. Confirmatory factor analysis revealed correlations of some errors with in the factors. According to Meyer (2020), correlation of errors within factors are justifiable on the basis of nature of factor and items. Errors of item 1 and item 2 and 3 are correlated and these items are related to the regrets related to decisions about marriage and education of children. Similarly correlated errors of item 17 and 18 is justifiable as both items are related to regrets about being carelessness regarding personal health and diet plan. In the same line item 25 and item 27 both are related to expectations and dependence on others and these items are sharing conceptual overlap. Item 35 and 36 both are related with regrets about ignoring the self enjoyment in life. Though correlation of errors in CFA is discouraged but on the basis of conceptual overlap of these items correlated errors of within factor items are justifiable (Prudon, 2015).

Table 2 – Model fit indices of CFA for Life Regrets Scale (N = 200)

Indexes	χ^2	*df*	CFI	RMSEA	GFI	TLI	RMR
Model	1233.5	586	.91	.04	.91	.90	.06

Legenda. *df* = degree of freedom; CFI = *Comparative Fit Index*; RMSEA = *Root Mean Square Error of Approximation*; GFI = *Goodness of Fit Index*; TLI = *Tucker Lewis Index*; RMR = *Root Mean Residual*.

Figure 1 – Measurement model fit of Life Regrets Scale
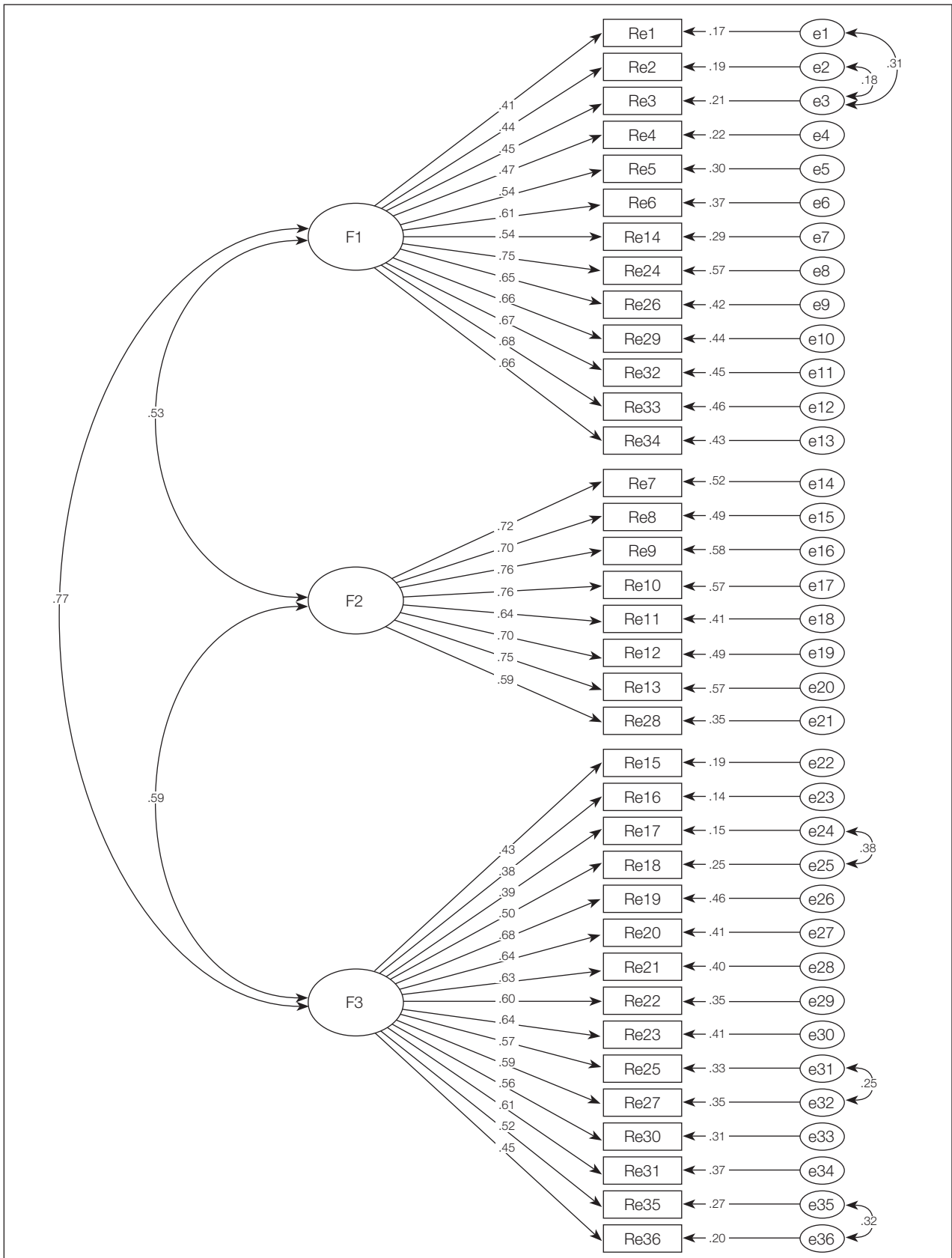
Study III: Validation of Life Regrets Scale (LR-36)

Study III is an independent study designed to validate the *Life Regrets Scale*. For this purpose, the correlation of *Life Regrets Scale* was checked with anxiety and depression.

Sample

The sample of Study III comprised 141 older adults (including both males, $n = 82$, and females, $n = 59$) selected through purposiveconvenient sampling technique. The age of sample ranged from 60 to 90 years ($M = 62.41$, $SD = 7.16$). Education of participants was categorized into 3 levels (secondary or less than, intermediate, and graduates and above). The data was collected from different rural urban areas of Sargodha District.

Instruments

Following is the description of measures used as evidence of construct validity of *Life Regrets Scale* in the present study.

– *Arabic Scale of Death Anxiety*. The *Arabic Scale of Death Anxiety* was developed by Abdel-Khalek (2004). This scale consists of 20 items. The scale was translated and adapted in Urdu language by Ghayas and Batool (2016). The adapted version of this scale consists of 23 items. The response format of this scale is 5 point Likert, ranging from 0 = no, to 4 = very often. There was no reverse item in this scale. Cronbach alpha reliability of this scale was .94 and Spearman Brown coefficient was .92. The split half reliability of this scale was .86. This scale was validated on the older adults of Pakistan by Ghayas and Batool (2016) and her findings revealed excellent model fit indices (chi square/df = 2.46, CFI = .94, GFI = .92, TLI = .92, RMSEA = .05).

– *Depression Anxiety and Stress Scale (DASS)*. DASS is a brief 21 items scale developed by Lovibond and Lovibond (1995). In the present scale, only depression subscale (item 3, 5, 10, 13, 16, 17 and 21) was used. This scale was translated into the Urdu language by Farooqi and Habib (2010). The scale uses a 4 point response format, ranging from 0 = does not apply to me at all, to 4 = applied to me very much, or most of the time. There is no reverse item in this scale. Cronbach alpha reliability of DASS-D (depression subscale) for older adults was .87 (Gloster et al., 2008).

– *Ego Integrity Scale*. This scale, developed by Ryff and Heincke (1983), is based on Erikson's ego integrity concept. This scale consists of 16 items. Nine items are negatively phrased (item 3, 6, 7, 9, 10, 11, 12, 13 and 16). Internal consistency of the scale was .82 (Ryff & Hiencke, 1983). The scale was translated in the Urdu language by Ghayas and Batool (2016). The internal consistency reliability of the translated version of the scale was reported to be .80.

– *Quality of Life Scale (QLS)*. This scale was developed by the World Health Organization in 1985. This scale was translated into the Urdu language by Khan and his colleagues (2003). The scale consists of a 26-items self-administered questionnaire. The response format ranges from 1 to 5 for each question, with a high score depicting a high quality of life. The scale has good internal consistency (Cronbach's alpha reliability is .86). The test re-test reliability of the translated version of the *Quality of Life Scale* is .74.

Procedure

Through a convenient sampling technique, participants were approached at different venues to collect data. The questionnaires were handed over and posted to a sample of 180 participants. They were instructed to fill them individually. Informed consent was taken from the participants. The confidentiality of the provided information was assured. The demographic sheet was attached with the questionnaires. The participants were asked to provide correct and authentic information. Participants returned questionnaires by hand. and some of them returned through the post. Some of the questionnaires were not returned by participants. The response rate was satisfactory as 157 out of 180 (83%) forms were returned while 141 were found suitable for study. Sixteen questionnaires were discarded due to random responses and incomplete information. Keeping in view the characteristics of the sample response rate seems satisfactory as older adults have a different type of attitudes about research that may be one of the reasons behind the 83% response rate.

Results of validation study

Table 3 shows the mean, standard deviation, alpha reliability, skewness and kurtosis of the measures used in the current study.

Table 4 shows the relationship among study variables. Pearson correlation shows that *Life Regrets Scale* has significant and positive correlation with death anxiety ($r = .42$, $p<.001$) and depression ($r = .53$, $p<.001$). While *Life Regrets Scale* appeared as negative correlate of quality of life ($r = -.32$, $p<.001$) and ego integrity ($r = -.47$, $p<.001$).

Table 3 – Mean, standard deviation, alpha reliabilities and descriptives of life regrets and its correlates (N = 141)

Variables	n	*M*	*SD*	Range		α	Skewness	Kurtosis
				Actual	Potential			
LRS	36	81.33	21.68	36-180	39-167	.91	.25	−.37
ASDA	23	35.80	23.35	0-92	0-85	.94	.24	−.76
Dep	07	4.80	4.11	0-21	0-16	.81	.65	−.59
QoL	26	87.18	13.98	26-130	56-120	.89	.14	−.46
EI	16	50.30	5.66	16-80	18-48	.70	.19	.07

Legenda. LRS = *Life Regrets Scale; ASDA= Arabic Death Anxiety Scale;* Dep = Depression; QoL = Quality of life; EI = Ego integrity.
Standard error of skewness = .20; Standard error of kurtosis = .40

Table 4 – Pearson correlation among study variables (N = 141)

Variables	1	2	3	4	5
1. LR		.42***	−.47***	.53***	−.32***
2. DA		–	−.24**	.45***	−.24**
3. EI				−.39***	.43***
4. Dep					−.32***
5. QoL					

Legenda. LR = Life regrets; DA = Death Anxiety; EI = Ego integrity; Dep = Depression; QoL = Quality of life.
**p<.01, ***p<.001.

DISCUSSION

The present study aimed at developing a comprehensive and indigenous measure of life regrets for the elderly Muslim population of Pakistan. Several self-report measures have been developed all over the world to measure life regrets but a valid and reliable measure of life regrets for the Pakistani population did not exist. Already developed scales were not completely applicable on Pakistani culture. Some of the scales were not applicable due to cultural differences. Others were constructed and validated on age groups other than older adults. Life regret is a culture bound construct. People from different cultures have different types of regrets. In Pakistani culture, religious and interpersonal regrets are more common than other regrets, while in European cultures education related regrets are more common (Gilovich & Medvec, 1995). Hence, the present study was designed to develop a reliable and valid scale of life regrets specific to Pakistani culture.

The present research was comprised of three studies. In phase I of Study I, previous literature provided the theoretical foundations for item generation (Erikson, 1973; Ghayas & Batool, 2016; Pethtel, 2012; Tomer & Eliason, 2005). Qualitative interviews with older adults were also conducted for generating items.

Pilot study was carried out in the phase II, initially developed items of *Life Regrets Scale* were administered on a sample of 90 older adults. Some of the items were deleted due to non-normality and weak correlation while others were excluded on the basis of feedback obtained from older people.

In the phase III, in order to establish the factor structure of *Life Regrets Scale*, principal axis factoring was carried out upon 60 items. Exploratory factor analysis was incorporated to assess the data of 506 participants through oblique method. Oblique rotation method describes the related factors in factor analysis (Gorsuch, 1983). Tabachnick and Fidell (2007) suggested that oblique method was better than orthogonal method because it described the correlated factors while orthogonal method described the unrelated factors. In the present study, the oblique rotation method was used because all the latent constructs were theoretically correlated. Items showing high conceptual relevance and loading of .45 or greater were retained. According to Kaiser's (1960) criterion, three well established factors with 36 items were retained. These factors were named as familial regrets, religious regrets and personal growth related regrets. All three factors were clear, well defined, interpretable and theoretically consistent.

Jointly three factors explained 32.63% of the total variance (see Table 2).

Study II was aimed at confirming the three-factor structure obtained through EFA. Confirmatory factor analysis was carried out on the life regrets scale (see Table 2 and Figure 1). CFA is more powerful than EFA because it provides hypothetical grounds for factor analysis (Gorsuch, 1983). In the present study, three-factor structure obtained through EFA was confirmed through CFA which showed a good model fit for the data with the total 36 items. This scale is a highly reliable scale which measures the regrets of Muslim older adults of Pakistan. This is a comprehensive measure of life regrets which measures regrets related to different domains of a person's life.

The first factor measures familial regrets related to interpersonal relationships with family (parents, siblings and children) and responsibilities toward the family. This factor explained the highest variance in this scale. A study conducted on older people by Keseberg (2017) showed that family was the main focus of old age. Older people evaluate their relationship with their family members and if they did not fulfill their responsibilities towards family members they experience regrets. In old age, the level of satisfaction and happiness was determined by their strong relationships with family members and successful fulfillment of their responsibilities. In contrast, if they had failed to accomplish their meaningful tasks or responsibilities, they developed feeling of regrets and despair (Kroger, 2007). In the present study, familial regrets subscale explained the highest variance in factor analysis (25.53%).

Items in the second factor measure regrets related to religious teachings and practices (such as offering prayers, reciting Quran etc.). This factor was named as religious regrets. In older age, people give more importance to their religious beliefs (Peck, 1968). When older people analyze their past life and realize that they could not perform their religious practices well, they feel more regret. A qualitative study conducted on the religiosity and regrets of Pakistani older people by Ghayas and Batool (2016) elucidated that older people have high religious regrets because when they realize that they did not fulfill their religious obligations because of worldly affairs, they develop a sense of guilt and remorse. Religious regrets explained second highest variance (4.73%) in *Life Regrets Scale* developed for elderly people of Pakistan.

Items related to third factor namely personal growth related factors measure regrets related to one's own self,

the choices one has made for himself and responsibilities towards oneself. This subscale shared the least variance in factor analysis of the *Life Regrets Scale*. In older age, a person's self is the lowest priority for him as his family and religious values are very important for him. A study conducted by Jones and McEvoy (2005), described that people experience the regret of inaction in the personal domain as compared to action. When they realize that they should have taken some important actions about themselves, they experience greater regrets. So in Pakistani culture, this factor explained less variance 2.72% as compared to other factors.

In order to find out gender differences in life regrets, independent sample *t*-test was carried out. Results revealed non-significant gender differences in regrets. Previously it is proved that males and females both experience equal level of regrets (Maximo, Berlanga, Aquisay, Valencia & Daoen, 2012). Interestingly results revealed effect of residential area on life regrets. Analysis portrayed higher level of regrets in people who belong to rural areas as compare to those who belong to urban areas. Results can be justified on the basis of difference in the culture of Pakistani urban and rural areas. Culture of rural areas is collectivistic culture where mostly people live in joint family system. In rural areas older adults are considered as head of their families and make decisions about their family members. Decision making is a big responsibility. Therefore, older adults feel themselves responsible for bad outcomes or consequences. On the other hand, in urban areas individualistic culture prevails where most of the people live in nuclear family system. In urban areas individuals usually takes decisions independently. Findings of previous researches elucidated that residential area significantly influence the regrets of older adults. individuals belong to collectivist culture might experience less regrets of inaction and greater regrets of action (Gilovich et al., 2003; Komiya, Oishi & Lee, 2016).

The results of present study showed that less educated people experience higher regrets as compared to highly educated people. The findings are in line with the previous literature, findings revealed highly educated people have a good sense of value and meaning for life and attain more achievements in their life which is linked with lower level of regrets as compared to less educated people (Joo & Chong, 2009). Another study conducted on the older adults of Pakistan showed that highly educated people have higher level of ego integrity as compared to less educated people. Ego integrity is result of past achievements and accomplishment

of their goals. So in older age lower level of ego integrity is outcome of failure in life and attain their desired goals which causes feeling of regrets (Ghayas & Batool, 2016). Findings of present study are also supported by previous researches such as a study conducted by Roese et al. (2009) on the impact of education on regrets and depression which described that lower education level is the predictor of stronger regrets which cause depression.

Study III aimed at validation of the newly developed *Life Regrets Scale*. On the basis of previous literature, it was hypothesized that the correlation of regrets with depression, death anxiety, ego integrity and quality of life would provide strong evidence for the construct validation of *Life Regrets Scale*. The results showed that life regrets had significant and positive correlation with death anxiety and depression. These findings are in line with the literature as a study conducted on older adults, depicted that a person's feeling of having a well-lived life predicted greater life satisfaction and was associated with a low level of death anxiety (Lau & Cheng, 2011). Another study conducted on the relationship of life regrets and death anxiety elucidated that death anxiety was associated with person's inability to achieve his goals and a sense of regret (Lehto & Stein, 2009). A research conducted by Rylands and Rickwood (2001) suggested that when a person reviews his life and sees his past wrong decisions and choices, it badly influence his life and ultimately leads to depression. These findings were also supported by another study which reported that higher level of regret correlated with a high level of depression (Wrosch, Bauer & Scheier, 2005).

Correlation analysis also revealed that *Life Regrets Scale* appeared to be significant negative correlate of ego integrity and quality of life among older adults. These findings also provided strong evidence for the construct validity of *Life Regrets Scale*. Previous literature supports the findings of the current study as it was reported that having a high level of life regrets are indicator of low level of ego integrity (Ghayas & Batool, 2016; Torges, Stewart & Duncan, 2008) and decreased quality of life (Bauer & Wrosch, 2011; Wrosch & Heckhausen, 2002).

CONCLUSION

Findings of current research reflect that life regret is a culturally bound phenomenon and the newly developed scale of life regrets is a valid and reliable tool to measure the life regrets of the elderly population of Pakistan.

Limitations and future recommendation

In the present study, *Life Regrets Scale* was only validated on Muslim population of Pakistan. It is suggested that future researches validate this scale on both Muslim and non-Muslim population.

In all self-reported measures, social desirability could be a potential threat for internal validity. So it is better to use more than one tool or more than one method in order to decrease the level of social desirability.

There is a comparatively low level of literacy rate in the Pakistani older population (Rehman, Jingdong & Hussain, 2015), therefore, it was not possible to represent an equal number of males and females in the sample. Moreover, an equal number of participants were not included as per education, and residential areas in the present study which can affect the findings. It is suggested that future researchers should try to ensure the equal representation of gender, education and residential area in the sample of studies. Representativeness of sample will provide better picture of results.

The study has limited generalizability as the data was collected from some cities of Punjab only, so to increase the external validity, further studies should be conducted on larger and more diverse samples.

The present study has used the cross-sectional research design which might have caused certain problems, so the longitudinal research design is recommended for future studies.

Practical implications of the present study

Regret is a culture-bound emotion and so there is a need to use culturally relevant tools to assess life regrets. The findings of the current study are important as the development of the *Life Regrets Scale* will help in understanding older people's regrets in Pakistan. These findings can be very helpful for psychologists, psychiatrists, counselors, and psychotherapists for developing such programs that can help and train older people about how they can cope with their regrets.

The present findings could also be useful for people belonging to different age groups, especially young people, in terms of making them aware of older people's life regrets. The findings can help educate young people on how to make effective decisions to achieve their life goals and prevent regrets in older age.

As life regrets cause disturbance in the overall evaluation of life, psychotherapists can develop social programs to deal with the disturbance caused by regrets which will lead to a decrease in other psychological problems as well.

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Translation and validation in Spanish of the Body Image Control in Photographs Questionnaire (BICP-S)

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♟ ABSTRACT. I social network come Facebook sono strettamente legati a preoccupazioni relative all'immagine del corpo e c'è un numero limitato di studi che affrontano questa problematica. L'obiettivo principale del presente studio è appunto quello di adattare e convalidare in spagnolo il *Body Image Control in Photos Questionnaire* (*BICP*; Questionario sul controllo dell'immagine corporea nelle foto). La versione spagnola del questionario (BICP-S) è stata somministrata ad un campione di 1155 adolescenti messicani: sono state eseguite analisi esplorative e confermative. Il modello ottenuto non replica i 5 fattori proposti originariamente nella popolazione italiana. I risultati mostrano che il modello a 4 fattori del BICP-S ha buone proprietà psicometriche con indici di adattamento adeguati. Le differenze di genere nel controllo dell'immagine corporea nelle foto sono autentiche: la variabilità con il modello originale può essere correlata a differenze culturali e socioeconomiche dei partecipanti. BICP-S può essere dunque un ottimo strumento per valutare l'esposizione e controllo dell'immagine corporea nelle fotografie nei social network. Dati i cambiamenti corporei della pubertà, è necessario ipotizzare il possibile utilizzo di Facebook, come strumento alleato ai processi di psicoterapia per questa fascia d'età.

♟ SUMMARY. *Highly visual social networks as Facebook, are related with concerns about body image. There is a limited number of works addressing the control of body image inside these social networks. The main goal of the present study is to adapt and validate in Spanish the Body Image Control in Photos Questionnaire (BICP). The Spanish version of the questionnaire (BICP-S) was administered to a sample of 1155 Mexican adolescents. Exploratory and confirmatory analyses were performed. The obtained model does not replicate the 5-factors proposed originally in Italian population. The results show that the 4-factors model of the BICP-S has good psychometric properties with adequate fit indexes. Gender differences in body image control in photos are genuine. Variability with the original model may be related to cultural and socioeconomic differences of the participants. BICP-S can be a good tool to evaluate the exposure and control of body image in photographs in social networks. Given the body changes of puberty, it is necessary to analyze the possible use of Facebook, as a tool allied to the processes of psychotherapy during this age.*

Keywords: *Questionnaire validation, Body image, Photo control, Facebook*

INTRODUCTION

Photo publication is a common daily practice among teenagers given the easy access to social networks in mobile devices. Among all the social networks, such as Instagram, Snapchat, or Twitter, Facebook keeps its leadership with more than 2.7 billion monthly active users (Clement, 2020). Facebook seems to be the preferred social network for most people, allowing them to be in contact with friends and family (Masuku & Moyo, 2014), making new friends and exchanging ideas. Its use during adolescence causes concern given that this phase of development is associated with a need for acceptance by peers as well as a concern for body image (Livingstone, 2008).

Recent studies have evaluated the effect of social networks on body image during adolescence, finding that the more time spent on Facebook and other highly visual social networks, the greater concerns about body image (Marengo, Longobardi, Fabris & Settanni, 2018). Moreover, the time spent on Internet, especially in social networks, correlates positively with a negative state of mind and body dissatisfaction (Tiggemann & Slater, 2013). It has also been observed that the time spent interacting with the photographic functions of Facebook, is related to body dissatisfaction (Meier & Gray, 2014).

Publication of photographs including self-portrait or selfies, has the purpose of obtaining social approval and positive feedback (Bazarova & Choi, 2014). For these reasons, some users tend to choose, edit and publish only the photographs that capture favorable features of the body image, and that conform to the aesthetic requirements of the time. In female adolescents, the body image that they depict in photographs usually differs from the real one (Tiggemann & Miller, 2010). According to Ardévol and Gómez-Cruz (2013), the body image shown in the published photograph does not represent the mirror's reflection of oneself. Selfie in digital photography, is a cultural practice that affects the constitution and exploration of personal identity and the social presentation of the body with a transforming potential (Ardévol & Gómez-Cruz, 2013; Avgitidou, 2003).

There is a limited number of works addressing the study of social networks in relation to the control of body image in adolescents, specifically on Facebook. In addition, there are few assessing tools available to explore the body image control in those networks. Meier and Gray (2014) created a questionnaire that measures the exposure of the appearance through a list of popular activities on Facebook, in which the participant scores the use of it. Boursier and Manna (2018), developed an instrument that explores the expectations of taking self-portraits, demonstrating that sharing selfies is a common practice among the participants. These authors state as a positive function of selfies the self-promotion, given that men and women's selfies promoted self-presentation and self-confidence, considering it as a necessary practice to obtain the approval and consideration of their peers.

Pelosi, Zorzi and Corsano (2014) developed and validated an instrument to evaluate the control of body image in photos that are published on Facebook, called *Body Image Control in Photos Questionnaire* (*BICP*). They refer the photographic control as the selection and edition of the photographic material. The BICP considers that photographic control is used by adolescents who struggle to accept the physical changes in their body, in order to make or to rebuild the body image. The BICP is a short, accessible and self-applied type-Likert scale. It consists of 27 items divided into two sections: General Photography (GP) and Facebook (FB), which are grouped into five factors: Negative body image control; Positive body image control; Self-portraits; Technological image editing and control; Tagging.

The BICP has been used to evaluate the relationship between the control of the photographic material that would be published on Facebook and the acceptance process of the new body image, measured through the perception of pubertal development and body self-esteem (Corsano, Zilioli & Zorzi, 2014). The authors found a negative correlation between the body self-esteem and the photographic control for each section, as well as for each factor, and a stronger correlation with the factor of Negative body image control. On the other hand, they found a negative correlation between the perception of pubertal development and photographic control in women. They found that age was correlated negatively with photographic control, both in the total group and in the group of women. Also a negative correlation was observed with body self-esteem in women. They suggest that early adolescents have a greater difficulty to accept the changes in the body, showing greater photographic control when there is a low body self-esteem.

The BICP seems to be a tool that would allow us to evaluate the self-control of body image in adolescents. It is of our interest, since the time spent in social networks as Facebook in Latin American countries is greater compared to the United States and Europe (eMarketer, 2016; Islas & Carranza, 2011; Navarro, 2020), affecting new generations in different ways.

Besides this, social networks are playing an important role in building the identity of young people, who are their main users (Renau, Oberst & Carbonell, 2013). Facebook also represents a more stable social network with content that is always accessible when compared with other highly visual social content networks (Belanche, Cenjor & Pérez-Rueda, 2019).

There are no instruments in Spanish that explore the physical self-presentation through the photos shared on social networks. Therefore, the objective of this work was to translate into Spanish and validate in a Mexican population the *Body Image Control in Photos Questionnaire*.

METHOD

Participants

Participants were 1155 Mexican adolescents (51.3% females, 48.7% males), with ages between 13 and 18 years (age M = 15.18, SD±1.15), recruited from public schools of intermediate and superior level in the north of Mexico. After the approval of the School of Psychology Review Board, the questionnaire was applied with the prior consent of the school's administration, the parents of the students and the consent of the minors. All participants included in this study were young Facebook users, who were asked for personal data (age, gender) when completing the offline questionnaire during September and October 2018. All questionnaires were completed in the student's school facilities.

Instrument

Body Image Control Questionnaire in Photos (*BICP*). This instrument evaluates the self-presentation of the body image in photographs published on Facebook (Pelosi et al., 2014). It consists of 27 items divided into two sections: Section 1 (S1): General Photography GP (8 items); Section 2 (S2): Facebook FB (19 items). These two sections are grouped into 5 factors: 1. Negative body image control (S1: 3; S2: 2, 4, 7, 8, 9, 10, 14, 15, 18); 2. Positive body image control (S1: 6, 8; S2: 3, 5, 11, 12), 3. Self-portraits (S1: 1, 5, 7; S2: 1, 13); 4. Technological image editing and control (S1: 2, 4; S2: 6, 19), 5. Tagging (S2: 16, 17). The response options range from 1 = Never to 5 = Always. The internal consistency measured by Cronbach's alpha is: S1 α = .819, and S2 α = .869.

Procedure

The study was carried out in 2 phases: 1) transcultural adaptation of the scale, and 2) the verification of the psychometric properties.

Phase 1. The transcultural adaptation was carried out for its application in Spanish-speaking countries, following the next steps: 1) the instrument was translated into Spanish by two independent translators (Trust, 1997); 2) a re-translation in Italian was carried out by a third translator (Maneesriwongul & Dixon, 2004); 3) review by an expert committee to determine the apparent validity and content (Escobar-Pérez & Cuervo-Martínez, 2008). The definitive version was called *Body Image Control in Photos Questionnaire-Spanish* (*BICP-S*) (see Appendix) and is very similar to the original. The translation into Spanish preserves the structural equivalence associated with text and format of items, maintaining translation accuracy in the contents of items, grammatical structure of questions, difficulty of terminology and lexical similarity of questions (Hambleton, Merenda & Spielbeger, 2009).

Phase 2. To evaluate psychometric properties, Cronbach's alpha and Spearman-Brown coefficients were classified as high ≥.70, adequate ≥.60 and low <.60 (Cronbach & Shavelson, 2004). A statistical analysis of the items was carried out, calculating means, standard deviation, inter-item correlation of each section, item-total correlation and Cronbach's alpha without the item.

An exploratory factorial analysis (EFA) was carried out with the principal component extraction method to find the first order factors, with a Promax rotation (Widaman, 1993). The factors had to fulfill the following requirements: a) eigenvalue greater than or equal to 1; b) saturation (factor loadings) equal to or greater than .30; c) exclusion of items with similar loads in different factors and grouped in one item within the factor with the highest saturation; d) conceptual congruence among all the questions included in a factor; e) composed of at least two items, with the exception of factors with a high coefficient of internal consistency and f) reliability greater than .50.

For the confirmatory factorial analysis (CFA) of the BICP-S (estimation method: maximum likelihood), a theoretical model is presented based on the EFA. The model postulates that there are four correlated factors. The statistical significance was set at p = .05. Four indices of adjustment of the model are considered: chi-square test (χ^2), chi-squared

distribution given the degrees of freedom [χ^2/df], Root Mean Square Error of Approximation (RMSEA), Confirmatory Fit Index (CFI). Values of good fit: p of $\chi^2 > .05$, $\chi^2/df < 2$, RMSEA $< .05$, between .05 and .08 is considered acceptable (Schermelleh-Engel & Moosbrugger, 2003), CFI $> .90$ (Bentler, 1990). Statistical power $(1 − \beta)$ and effect size for group differences is reported according to the Cohen's classification as small ($d = .2$), medium ($d = .5$), and large ($d \geq .8$) (Cárdenas & Arancibia, 2014).

All analyses were performed using SPSS for Windows (version 19.0) and SPSS-Amos Graphics (version 21), statistical power and effect size were performed with G*Power (version 3.1).

RESULTS

Reliability and inter-scale correlations

The internal consistency for the set of 27 items was high ($\alpha = .942$). The means of the total scores for each of the sections of the questionnaire show a high internal consistency for the Section 1 with 8 items ($\alpha = .832$), very similar to the original ($\alpha = .819$) while the inter elements correlations varies from $r = .230$ to .518 ($p < .01$). Section 2 has a high internal consistency ($\alpha = .924$) for the set of 19 items, even better than the original proposal ($\alpha = .869$). Inter-element correlations vary from $r = .167$ to .614 ($p < .01$). Both sections of BICP-S have a high positive correlation ($r = .810$, $p < .01$), higher than that reported in the Italian version (see Table 1).

Factorial analysis

An EFA was carried out assuming the original structure of the questionnaire with the five factors, obtaining a model of four factors that do not reproduce the proposed structure, for which a new model is presented.

The correlation matrix shows good properties for the factors extraction. Its determinant tends to zero $|R| < .01$. The Kaiser-Meyer-Olkin sample adequacy index is high (KMO = .96). Likewise, the null hypothesis of equivalence of the matrix of correlations to an identity matrix (independent variables) is rejected by Bartlett's test ($\chi^2_{14627} = 351$, $p < .01$).

By Kaiser's criteria, 4 factors were defined that explain 47.1% of the total variance (see Table 2). The first component was composed by 14 items. Six items correspond to the expected factor of positive body image control (GP6, GP8, FB3, FB5, FB11, FB12), in addition, four items that previously corresponded to Negative body image control (GP3, FB2, FB8, FB9) and four of self-portraits (GP1, GP7, FB1, FB13) show the highest saturation in this factor. All of them have loads greater than .40. The items included in this component are congruent with the dominant content of positive image control. The internal consistency of the 14 items was high ($\alpha = .921$) and does not improve by eliminating items. Thus, the positive body image control factor could be defined with 14 items, which focus on a nice appearance and projecting a good image.

The second component was composed by 6 items, which correspond to the expected factor of Negative body image control (FB4, FB7, FB10, FB14, FB15, FB18), all with loads greater than .50. The internal consistency of the 6 items was high ($\alpha = .857$) and does not improve by eliminating any of the items, being defined as a Negative body image control, which focuses on the control and managing of a negative body image by no showing defects or negative aspects of the body specifically on FB photos.

The third component was composed by 5 items. Four items correspond to the expected factor of Technological image editing and control (GP2, GP4, FB6, FB19); and one item that previously corresponded to the self-portrait factor (GP5) has its highest saturation, congruent in content with the other four items. All items got saturations greater than .40. The internal consistency of the 5 items is high ($\alpha = .705$) and does not improve when eliminating any of the items.

The fourth component was composed of 2 items, which correspond to the expected factor of Tagging (FB16, FB17), both with saturations greater than .70. The Spearman-Brown coefficient of the 2 items was adequate ($r_{kk} = .682$).

To analyze the structural validity of the dimensions of the context of the instrument and to verify the correlation between the variables that integrate it, the statistical tests of Bartlett and Kaiser-Meyer-Olkin (KMO) were used. The results of the sample adequacy measure KMO are close to one, having the lowest value in the fourth factor. However, values above .50 in this measure suggest adequacy of the factorial analysis (Lloret-Segura, Ferreres-Traver, Hernández-Baeza & Tomás-Marco, 2014). Bartlett's sphericity test shows statistical significance in the four dimensions (see Table 3).

Table 1 – Corrected item total correlation for all items of the BICP-S

Section/Item	Corrected item total correlation
GP1	.641
GP2	.485
GP3	.634
GP4	.412
GP5	.517
GP6	.639
GP7	.643
GP8	.593
FB1	.632
FB2	.640
FB3	.704
FB4	.585
FB5	.566
FB6	.351
FB7	.624
FB8	.747
FB9	.758
FB10	.643
FB11	.726
FB12	.670
FB13	.415
FB14	.580
FB15	.710
FB16	.382
FB17	.512
FB18	.614
FB19	.579

Legenda. GP = General Photography; FB = Facebook.

Table 2 – Factor loadings for exploratory factor analysis with promax rotation of BICP-S

	Factor			
	1	**2**	**3**	**4**
GP3	.799			
GP6	.766			
FB2	.678			
FB1	.649			
GP1	.612			
GP7	.603			
FB9	.598			
FB3	.581			
FB5	.577			
FB8	522			
FB11	.413			
GP8	.411			
FB13	.401			
FB12	.359			
FB10		.799		
FB7		.786		
FB18		.638		
FB15		.618		
FB4		.614		
FB14		.574		
GP4			.600	
FB6			.458	
GP5			.457	
FB19			.446	
GP2			.442	
FB17				.729
FB16				.721

Legenda. GP = General Photography; FB = Facebook.

Table 3 – Internal consistency and structural validity of the BICP-S dimensions

Factor (total of items)	Cronbach's Alpha	Bartlett's test of Sphericity (χ^2; p value)	KMO
1. Positive body image control (14)	.921	7828.58 - 0.00	.96
2. Negative body image control (6)	.857	2735.24 - 0.00	.88
3. Technological image editing and control (5)	.705	899.01 - 0.00	.77
4. Tagging (2)	.680	359.64 - 0.00	.50

Legenda. KMO = Kaiser-Meyer-Olkin test for sampling adequacy.

Results of the confirmatory factor analysis

A model of 4 correlated factors with a total of 27 items was tested. The adjustment indices were adequate (χ^2/df = 4.772, CFI = .917, and RMSEA = .057) (see Figure 1).

Differences by gender

The total score of each factor was obtained by the sum of the corresponding items. Then, comparisons by gender were performed showing high significant statistical differences, observing that women scores were higher in all factors. The factor of Positive body image control has a large effect size. The factors of Negative body image control and Technological image editing and control show effect sizes that exceed the medium (>.50). The only factor with a small effect size is Tagging. The statistical power of the different subscales exceeds the minimum required value (.80), so the probability of type I error is 10% in the case of Tagging, and null in the rest of the subscales (see Table 4).

DISCUSSION

The present study evaluated the psychometric properties of the Spanish version of the BICP, in Mexican adolescents. The internal consistency of the BICP-S was similar to the original version. However, the factor analysis shows a different structure due to differences in factorial loadings of the items, which were grouped into 4 factors, maintaining the structure of the Tagging factor and disappearing the Self-portraits factor, of which 4 items are integrated into the Positive body image control factor, and one more in the Technological image editing and control. The confirmatory factor analysis allows to contrast the structure of 4 correlated factors of the Spanish version, showing good adjustment.

Figure 1 – Model of four correlated factors of BICP-S
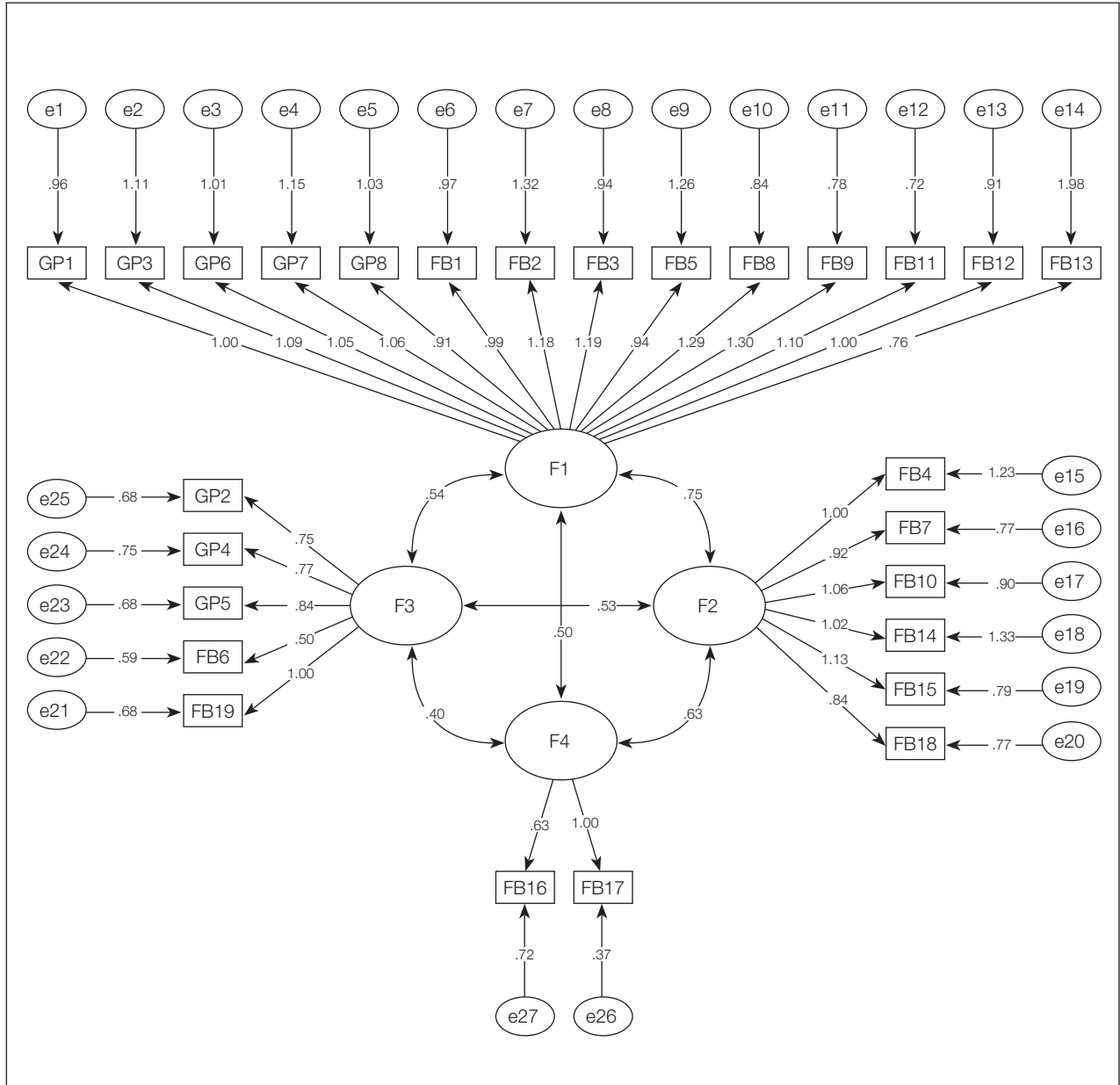
Table 4 – Gender contrast, effect size and statistical power in the subscales of BICP-S

| | Gender | | | | | | | | |
| | *Female*
n = 593 | | *Male*
n = 562 | | | | | | |
Variables	*M*	*SD*	*M*	*SD*	*df*	*T*	*p*	*1-β*	*d*
PBIC	42.64	12.91	30.20	11.79	1151.4	17.11	.001	1.00	1.01
NBIC	15.38	6.77	10.77	5.00	1088.5	13.19	.001	1.00	.77
TIEC	8.93	3.75	6.88	2.65	1066.6	10.78	.001	1.00	.63
TAGG	3.68	2.08	3.18	1.79	1142.8	4.33	.001	.90	.26

Legenda. PBIC = Positive body image control; NBIC = Negative body image control; TIEC = Technological image editing and control; TAGG = Tagging.

After analyzing the conceptualization of the Italian version of the BICP in reference to the Self-portraits factor which contemplates the control of body image in self-portraits, we can understand why in the adaptation to Mexico, 4 items of this subscale were included within the Positive image control factor and one in Technological image editing and control. In first instance, it could be difficult for Mexicans to distinguish between the control of body image in self-portraits or in general photography. At the end, these two categories are about body image control, they can fall into the category of image edition with technological help or just a control in the body image, which could be positive or negative. The polarization in the control over the self-portraits in the Mexican population needs to be reviewed in further studies, given the high concerns about body image in Mexicans (Meza Peña & Pompa Guajardo, 2018; Sámano et al., 2015).

In this study we found that women score higher than men in general and in each of the four factors, which coincides with other studies in relation to activity in photographs on Facebook, where women are particularly prone to see and share, comment and tag digital photos (Junco, 2013). The literature warns that girls present greater difficulties to accept body changes in adolescence, and the present study shows this greater control of photography in women, which coincides with previous reports (Corsano et al., 2014).

However, variability between the results of the studies may be due to cultural and socioeconomic differences of the participants. As Amorim and Bezerra (2018) state, the ethical disparities and socioeconomic factors influence the contextual balance of variables. Even the time in which the studies have been done can be a crucial element in the findings, given the popularity of Facebook in each moment and the increased number of users by the year 2018. In addition,

the methodology used in the exploratory and confirmatory factor analyses can lead to the derivation of different models. Future investigations are required with analyzes similar to those used in the original and the present study.

Despite the extensive literature regarding the impact of social networks on the body image construction, few studies focus on self-presentation through photos on social networks. The BICP-S can be applied to satisfy research needs in the field of mental health, both theoretical and practical, for the promotion of a healthy body image integration in adolescents. Corsano and colleagues (2014) state that the presentation of oneself through photographs in these new forms of communication allows to re-elaborate and accept the body image. Nowadays, we live in a society attached to the visual register (Chaparro, Echeverry & Arévalo, 2014), in which publication of photos and self-portraits is an inherent activity in social networks. Given the wide range of applications for photo editing, users have the possibility to reorganize the human "phenotype" tailored, projecting a positive image of the body and improving it to make it more attractive for its subsequent evaluation in social networks (Kim & Lee, 2011; Wang, Yang & Haigh, 2017).

Studies that evaluate the changes in the constitution of the body image through its exposition in photographs on social networks are necessary, as well as to analyze the possible use of Facebook as a tool allied to the psychotherapy processes in which the construction of identity and the healthy acceptance of the body image is under discussion. Adolescents face two key tasks during this age: the search for an autonomous identity as well as the affiliation and gain of peer acceptance (Gurman & Underwood, 2008). At this age, the communication mediated by technology can help in the identity formation through photo tagging activities, which confirm the identity of the adolescent (Nguyen & Barbour, 2017). Social networks allow editing and controlling photographs, which can lead to greater acceptance since the adolescents find prompt feedback to their image through the likes or through followers in other types of networks, yet to be explored. By transiting the natural body changes of adolescence and the mourning of the childhood body, social networks, particularly Facebook, can be a support to develop and accept the new body image. One of the main results of the present study is that the confirmatory factor analysis indicates a good fit of a model with 4 correlated factors for the set of 27 items. In conclusion, BICP-S, is a good questionnaire that will allow evaluating the control of the image through photographs. One of the limitations of the study is due to the characteristics of the sample, which was extracted from the metropolitan area of Monterrey Mexico, so that further studies are necessary in other populations, which can allow observing the phenomenon in heterogeneous samples. In future research it is recommended to analyze how the use of social networks with high visual content influences the control of the photographic image and its relationship with the satisfaction and/or distortion of body image perception, differences by gender, as well as analyzing if the instrument allows differentiating between population at risk for eating disorders and no clinical populations.

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APPENDIX

Items composing the Body Image Control in Photos Questionnaire-Spanish

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Section 1 - General Photography

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1   I practice in front of the mirror to see how I may come out in a photo
(Hago pruebas delante del espejo para saber cómo salir mejor en las fotos)

2   I look for forums that suggest how to come out better in photos
(Busco foros que dan consejos sobre cómo salir bien en las fotos)

3   When someone takes a photo of me, I want to see it on the camera's display, in order to check how I have come out
(Si me toman una foto, pido que me dejen verla para checar cómo salí)

4   I use image editing programs (Photoshop etc.) to improve my appearance in photos
(Uso programas para retoque de fotos -como Photoshop- para mejorar mi aspecto en la foto)

5   I take photos in front of the mirror or with the webcam, so that I may check my image
(Me saco fotos delante del espejo o con la webcam para controlar mi imagen mientras me inmortalizo)

6   When someone takes a photo of me, I adopt a special pose or expression to look better
(Cuando me sacan una foto me pongo en una pose en particular o utilizo una expresión particular ya que sé que así salgo mejor)

7   I prefer my image as it appears in self-portraits, because I know how to make it look better
(Prefiero las fotos que me tomo yo porque así sé cómo hacerle para salir mejor)

8   If someone around me is taking photos, I often check how I look in mirrors or other reflecting surfaces, in case I am in the picture
(Si me encuentro en una situación en la que hay alguien que tome fotografías, me reviso bien en el espejo, o sobre alguna otra superficie reflejante, por si acaso llego a estar dentro de la toma)

Section 2 - Facebook Photography

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1   I take photos of myself several times, until I obtain the image that makes me appear most attractive, in order to post it on my FB profile
(Me tomo muchas fotos para obtener una imagen bella de mi para cargar en el perfil)

2   I do not post any photo on my profile if I am not satisfied with my appearance
(No subo una foto en el perfil si no estoy satisfecho de cómo salí en la foto)

3   I post those photos which I hope will receive praise for my appearance
(Cargo fotos escogiendo aquellas de las cuales espero recibir comentarios positivos sobre mi aspecto)

4   If someone tags a photo of me that I dislike, I remove the tag
(Si alguien me etiqueta en una foto en la que no salí bien, quito la etiqueta)

5   I like to post photos that portray me in my favorite clothes
(Tiendo a poner fotografías en Facebook en las cuales salgo con mi ropa favorita)

6   I have asked someone, more expert than me, to touch up photos of myself, in order to post them on FB
(Le he pedido a alguien más experto que yo, que retoque con la computadora alguna foto que luego he subido al Facebook)

7   If someone posts some photos of me that I dislike, I ask him/her to delete them
(Si alguien sube una foto la cual no me gusta por cómo salí, pido que la quiten)

Section 2 - Facebook Photography

8   When I notice that someone is taking photos which will be posted on FB, I check on the camera's display how I have come out
(Si sé que la foto que me toman será publicada en Facebook, reviso en la cámara el cómo salí)

9   When I look at the photos in which I have been tagged, I check that I have come out well
(Viendo las fotos en las cuales me etiquetan, checo de haber salido bien)

10   If someone posts a photo that shows my body's worst defect, I ask him/her to remove it
(Si alguien sube una foto que pone en evidencia mi peor defecto físico, pido que la quiten)

11   Since I started using FB, I am more careful about how I come out in photos
(Desde que tengo Facebook estoy más atento a cómo salgo en las fotos)

12   If someone takes a photo of me, and I see on the camera that I have come out well, I ask that it be posted on FB
(Si cuando me toman una foto y al revisarla en la cámara me doy cuenta de que salgo bien, veo la forma de que la suban al Facebook)

13   For my profile image I use a photo/picture that does not portray me
(Como imagen de perfil uso una foto que yo mismo me tomé y que me gusta)

14   If someone posts an untagged photo of me that I dislike, I do not tag it
(Si alguien sube una foto en la cual salí mal, más no me ha etiquetado, no me etiqueto)

15   I check photos on others' camera displays and, if I do not like how I have come out, I ask them to not post the photos
(Revisando las fotos en el display de la cámara de alguien más, les pido que no suban las fotos que no me gustan como salgo)

16   I always tag myself, if someone has not already done it
(Me etiqueto en las fotos siempre si es que alguien más no lo ha hecho por mi)

17   I check how I appear in photos posted by others, and I tag only those in which I look good
(Viéndome en las fotos que otros suben, me etiqueto sólo en aquéllas en las que me gusta como salgo)

18   I feel awkward if I notice that someone has posted photos that show my body's defects
(Descubrir que alguien ha subido una foto que muestra un defecto físico mío, me provoca malestar)

19   I add graphic effects to the photos posted on FB, in order to make me look more attractive
(Agrego efectos en las fotografías que cargo al Facebook para hacer mi aspecto más atractivo)