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Research Article

The Impact of Spousal Bereavement on Older Adults Cognitive Functioning: The Moderating Role of Social Support

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Abstract

Objective. This study examines the relationship between spousal bereavement and the cognitive functioning of older adults and investigates the role of social support as a moderator in this relationship.

Method. The present study employed a cross-sectional research design. Purposive sampling was used to collect data from bereaved and non-bereaved older adults *(n = 192, M = 68.23 years)* in Rawalpindi and Islamabad.

Results. The moderation analysis showed an insignificant moderation effect of social support on the relationship between spousal bereavement and the cognitive functioning of older adults. Furthermore, correlation analyses conducted presented a negative significant relationship between cognitive functioning and spousal bereavement, a positive significant relationship between cognitive functioning and social support, and a negative correlation between spousal bereavement and social support of older adults.

Conclusion & Implications. The study facilitates researchers to build upon current knowledge of cognitive functioning, and social support in older adults to investigate the possible factors that contribute to cognitive decline following spousal bereavement.

Keywords. *Older adults, spousal bereavement, cognitive functioning, social support, moderation.*

Foundation University Islamabad

Introduction

The world has observed a drastic increase in the elderly population, as the number of older adults will continue to increase in the coming years (Barragan-Garcia et al., 2021). In Pakistan, approximately 15 million people were 60 and above in 2019, formulating 7% of the total population which will be double by the end of 2050 (HelpAge International, 2015; Hassan et al., 2020). This greying of the population leads to an enhanced burden on the healthcare system of a developing country like Pakistan as elderly individuals experience more health concerns (Abdullah, 2021; Hassan et al., 2023).

With growing age, older adults become more vulnerable to the loss of their loved ones. Subsequently, one event that older adults commonly face that disrupts their mental health is the loss of a spouse (Atalay & Staneva, 2020). Bereavement is a phenomenon that most adults experience after the death of a loved one and is referred to as an inevitable life transition (Seiler et al., 2020). Evidence from stress research has shown that spousal loss is described as one of the most stressful events that becomes a serious threat to the well-being and quality of life of older adults (Van Boekel et al., 2019). Thus, leading to a loss of social engagement as well as decreased mobility (Calatayud et al., 2021). It has a significant effect on several elements of the older adult's functioning, particularly cognitive functioning (Atalay et al., 2020). Several explanations exist for how cognitive functioning is impacted by the loss of a spouse (Worn et al., 2018). Andrew and Rockwood (2010) found that social vulnerability and social isolation, which are frequently brought on by spousal loss, are related to a decline in cognition among the older population, and especially their memory is affected.

Detrimental effects of widowhood in the form of increased grief, and emotional and social isolation (Szabo et al., 2020) last for a prolonged time period. Social support in the context of bereavement can be defined as the provision of resources to someone who has undergone bereavement, with the intention of enhancing the well-being of the recipient (Shumaker & Brownell, 2010). Support provided by one's spouse enables older adults to maintain their mental well-being and social engagement (Ermer & Proulx, 2019). Individuals with a greater sense of perceived support are better at managing stress (Gellert et al., 2018). This is reinforced by the Stress buffering model that posits that social support has been associated with a positive impact on well-being after traumatic events and is considered a protective factor against the negative effects of stressful life events (Cohen et al., 1985) like bereavement.

Moreover, studies highlight that bereaved individuals are unable to experience sufficient support to moderate their bereavement even though social support is considered an integral predictor of psychological outcomes after bereavement (Rodriguez & Cohen, 1998). The widowhood-cognition link is based on the interaction between three forces, one of which is the reduction of social contact (Worn et al., 2020). A decrease in social support and bereavement are interconnected as older adults experience reduced perceived social support after losing their loved one (Xiang et al., 2021). According to Kelly et al. (2017), a relationship exists between social support and the global cognition of older adults, specifically memory. A study conducted in Taiwan also revealed a significant association between social support and cognitive functioning, with higher social support linked to greater cognitive functioning (Yeh & Liu, 2003). Married couples showcased higher scores of cognitive functioning so individuals who face widowhood experience a lack of social support from their spouse and need new sources of social support (Tucker et al., 1999).

Subsequently, the Cognitive Reserve Theory focuses on the advent of enhancing the resistance of the brain to cognitive decline (Stern, 2003). In the case of bereavement, social activities in the form of social support are considered to be the most significant predictors of psychological outcomes following bereavement (Burke et al., 2013). Social support is considered to promote cognitive reserve (Petkus et al., 2021), with higher social support reducing cognitive decline after bereavement (Bottomley et al., 2015). When individuals with a stronger cognitive reserve experience adverse life events, for example, bereavement, their cognitive problems may emerge with less severity (Stern, 2003). Henceforth, considering a relationship between spousal bereavement and cognitive functioning results in certain variables moderating

this relationship, one of which is social support. Literature highlights that greater levels of perceived social support were connected to higher cognitive functioning scores (Pillemer & Holtzer, 2015), reinforcing that social support that is considered a cognitive reserve serves as a protective factor against cognitive decline (Asmat, 2020).

There is no established treatment for cognitive decline, so identifying older populations at risk becomes significant for the implementation of interventions to increase practices that prevent cognitive decline (Singham et al., 2021). As spousal bereavement leads to increased mortality, 'the widowhood effect' (Sarah et al., 2016), it is integral to identify the older population at risk, as well as consider bereavement-induced cognitive decline.

Research Hypotheses
Hypothesis 1. There will be a significant association between spousal bereavement and social support with cognitive functioning and its various domains in older adults.
Hypothesis 2. Social support will significantly moderate the relationship between spousal bereavement and cognitive functioning in older adults.
Hypothesis 3. Bereaved and non-bereaved older adults will show significant mean differences in cognitive functioning and social support scores.
Conceptual Framework
The model depicts that there is a direct relationship between spousal bereavement and the decline in cognitive functioning. However, this relationship is moderated by the presence of social support which interferes with the intensity and direction of this relationship. Therefore, the increase or decrease of social support may exacerbate or reduce the possibility of a decline in the cognitive functions of the bereaved elderly.

Figure 1
Conceptual Framework of the study
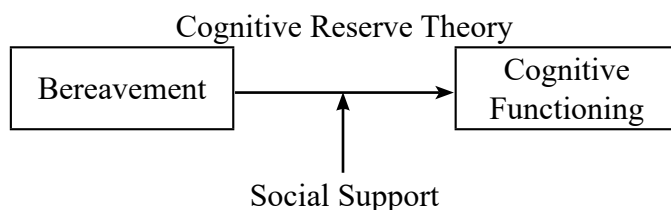
Research Methodology
In order to investigate the relationship between study variables, a cross-sectional research design was utilized. The G Power Analysis for Indirect Effects application determined the sample size. With a 5% margin of error, 95% confidence interval, and a 0.15 effect size, a sample size of 107 was established. The total sample size of this study comprised 192 male and female bereaved and non-bereaved older adults. A convenient sampling technique was employed. The research was confined to Rawalpindi and Islamabad.

Sample
The sample comprised two groups, the bereaved group, and the non-bereaved group. The non-bereaved group consisted of older adults aged 60 and above who had experienced the loss of their spouse *(n=132)*. For the non-bereaved group *(n=60)* of the sample, the inclusion criteria required individuals who had not experienced spousal loss and were over sixty years old. Exclusion criteria consisted of individuals with physical disabilities or chronic and psychological disabilities. Taking into account the ethical considerations, necessary approvals from the ethical board of the National University of Sciences and Technology (NUST) were taken before the data collection was started.

Assessment Measures
The assessment battery was composed of five parts including the informed consent, the demographic information form, the Montreal Cognitive Assessment (MoCA), Core Bereavement Items (CBI), and the Multidimensional Scale of Perceived Social Support (MSPSS).

Montreal Cognitive Assessment (MoCA). Nasreddine et al. (2005) formed this concise screening measure for the assessment of cognitive decline in older adults. Thirty items assessing various cognitive domains are included in MoCA: short-term memory (5 points), visuospatial abilities through clock drawing (3 points), and a cube copy task (1 point); executive functioning through Trail making test Part B (1 point), phonemic fluency (1 point), and verbal abstraction (2 points); attention, concentration, and working memory through target detection (1 point), serial subtraction (3 points),

digit forward (1 point) and digit backward (1 point), language through naming with less familiar animals (3 points), and repetition of complex sentences (2 points) and orientation to time and place (6 points). MoCA is scored by obtaining a total score for each item. The score range is 0-30. A cut-off score of 26 has been recommended as normal functioning by clinicians out of a total score of 30. Reliability analysis conducted through Cronbach alpha revealed to be 0.78. The already available Urdu-translated version of the assessment tool was used (Nasreddine et al., 2005). MoCA was conducted with both bereaved and nonbereaved participants to assess their cognitive functioning.

Core Bereavement Items (CBI). Burnett et al (1997) developed the Core Bereavement Items scale. However, this scale was translated into Urdu by Agha and Haque (2021) which was used in this study. This measure is intended to assess bereavement experiences and core grief. It consists of 17 items that are divided into three subscales, namely Images and Thoughts (Items 1–7) with a score range of 0-21 and an alpha coefficient of 0.74, Acute Separation (Items 8–12) with a score range of 0-15, and an alpha coefficient of 0.77, and Grief (Items 13–17) with a score range of 0-15 and an alpha coefficient of 0.86. All the items are graded on a 5-point Likert scale ranging from 0 = Never to 3 = A lot of time. Furthermore, the scale has no reverse items. The reliability analysis of the whole scale conducted yielded a Cronbach alpha coefficient of 0.92. CBI was only conducted with the participants in the bereaved group who had experienced spousal bereavement as it measures bereavement experiences and associated grief.

Multidimensional Scale of Perceived Social Support (MSPSS). MSPSS was developed by Zimet et al. (1988) and translated and validated by Tonsing et al. (2012). This scale comprises 12 items and assesses the perceived social support of individuals from 3 sources: family, friends, and significant others. However, in this study, only 2 subscales were utilized, particularly family and friends, as significant others of the participants in our bereaved sample had already passed. For the family subscale, the participants responded by taking into consideration the social support provided by the rest of the family following the death of their spouse. So, the scale consisted of 8 items, which collected responses through a 7-point Likert scale (0 strongly disagree, 5 = strongly agree). To calculate the total score, it is required to sum across all 8 items and then divide by the total number of items which in our study is 8. The score range is 0-56. A score between 11-35 was characterized as low perceived social support, a score between 36-43 was characterized as medium perceived social support, and a score between 44-56 was characterized as high perceived social support. A reliability analysis through Cronbach Alpha revealed a reliability value of 0.87. MSPSS was conducted with both bereaved and nonbereaved participants to determine their perceived social support.

Data Analyses

After the data collection, the data was analyzed using Pearson correlation, moderation analysis, t-tests, and analysis of variance in the SPSS software. The first step was to organize and summarize the descriptive statistics of the sample data.

The assumptions for the normality of the data were checked and fulfilled before the final analysis was conducted. Table 1 highlights the background characteristics of the participants in order to understand the demographics of the study sample. Based on the sociodemographic variables, the means have also been presented in the same table. Out of the 192 respondents, 75.5% were female and 24.5% were male. The young older adults with an age range of 60-75 years, comprised 85.4% of the respondents. Majority of the sample have either secondary education (39.1%) or tertiary education (34.9%). 49.5% of respondents had more than one chronic medical condition. A majority of the sample falls in the low socioeconomic status with 39.5% having an average monthly household income of less than 100,000.

Table 1

Demographic Characteristics of the Participants (N = 192)

Demographic		*N*	%	SB	SS	CF
					Mean	
Gender	Male	145	75.5	26.4	40.9	19.8
	Female	47	24.5	26.3	38.2	17.9
Age	Younger older adults	164	85.4	25.9	38.9	18.5
	Middle older adults	24	12.5	28.2	39.0	17.7
	Older older adults	4	2.1	32.0	39.5	17.5
LSS	Non-bereaved	60	31.3	-	43.8	20.3
	Bereaved	132	68.8	26.3	36.7	17.5
Education	No education	32	16.7	28.0	36.1	14.2
	Primary education	18	9.4	27.6	36.1	13.8
	Secondary education	75	39.1	27.1	37.9	18.6
	Tertiary education	67	34.9	23.8	42.1	21.4
CMC	No CMC	23	12.0	25.1	40.6	18.4
	One CMC	74	38.5	24.6	40.3	19.5
	More than one CMC	95	49.5	27.8	37.4	17.5
EHI	Less than Rs. 50,000	69	35.9	28.5	36.0	14.2
	Rs. 50,000 – 100,000	76	39.5	26.1	39.0	19.4
	Rs. 100,000 – 200.00	31	16.1	23.2	42.8	22.7
	More than Rs. 200,000	16	8.3	20.5	43.1	23.5

Note. LSS = living status of spouse, CMC = Chronic Medical Condition, EHI = Estimate Household Income, SB = Spousal Bereavement, SS = Social Support, CF = Cognitive Functioning.
[a] Spousal bereavement was not measured in non-bereaved participants of the data

Table 2 demonstrates Pearson's correlation analysis of the study variables. These correlations were observed only on the bereaved sample (*n*=132) as non-bereaved participants were not asked to complete the core bereavement items. The purpose of this analysis was to identify if spousal bereavement and social support were correlated with cognitive functioning. Higher scores of CBI were associated with lower cognitive functioning (r= -.35, *n*=132, p<.01) and lower social support (r=-.43, *n*=132, p<.01). Higher cognitive functioning scores were also significantly correlated with lower social support (r=.34, *n*=132, p<.01), as represented by Table 2.

Table 2 also shows the correlation of specific domains with spousal bereavement. Higher spousal bereavement significantly correlated with lower executive functioning (r = -.33, *n* = 132, p <.01), attention (r = -.30, p< .01), memory (r=-.24, *n*=132, p<.01) and abstraction (r= -.20, *n*=132, p<.05). However, results showed that spousal bereavement was not significantly correlated with language (r = -.13, *n* = 132, p = .11) and orientation (r=-.06, *n*=132, p> .05). So, H1 was partially supported.

Table 2

Correlation of Specific Cognitive Functioning Domains with Spousal Bereavement

Variable	N	M	SD	1	2	3	4	5	6	7	8	9
Cognitive Functioning	132	17.5	5.7	1								
Executive functioning	132	2.1	1.7		1							
Naming	132	2.2	0.5		.49**	1						
Attention	132	3.1	1.8		.58**	.40**	1					
Language	132	1.6	1.0		.48**	.24**	.41**	1				
Abstraction	132	1.0	0.8		.33**	.15	.36**	.28**	1			
Memory	132	2.1	1.3		.30**	.17*	.38**	.43**	.19*	1		
Orientation	132	5.1	1.2		.21*	-.06	.25**	.32**	.19*	.26**	1	
Spousal bereavement	132	26.3	9.3	-.35**	-.33**	-.30**	-.30**	-.13	-.20*	-.24**	-0.6	1
Social Support	132	36.7	10.1	.34**								-.43**

p<0.05*, p<0.01**

Simple Moderation Analysis was conducted through the Process Macro Model 1 by Hayes. Results, displayed in Table 3, show spousal bereavement to have a negative, statistically significant direct influence on cognitive functioning, b = -.14, t (128) = -2.74, p<.01. Furthermore, results also demonstrated social support, the moderator variable had a positive direct statistically significant effect on cognitive functioning, b = 0.15, t (128) = 3.23, p <.01. However, the interaction term (X*W), the interaction between spousal bereavement (X) and social support (W) on cognitive functioning (Y) was statistically insignificant b = -0.00, t (128) = -1.33, and p = .85, reflecting that social support did not a significantly moderate the relationship between spousal bereavement on cognitive functioning.

Table 3

Moderation Analysis

Variable	Cognitive Functioning					
	B	SE	t	P	LL	UL
CBI	-.14	.05	-2.74	.00	-.25	-.04
MSPSS	.15	.04	3.23	.00	.06	.25
CBI x MSPSS	-.00	.00	-1.33	.18	-.01	.00

As few researches investigate the influence of demographic determinants on cognitive functioning, the study conducted ANOVA for age, education level, and estimated household income. The purpose of this analysis was to find whether these variables significantly altered the cognitive functioning of older adults. Results of the research indicated a significant difference (t (147) = 3.17, p<.05) in the cognitive functioning of bereaved and non-bereaved females. However, there was an insignificant difference in the cognitive functioning of the three age groups: F (2, 129) = 0.57, p = .56, as shown by ANOVA. p< .05 was determined for the cognitive functioning scores of respondents with different education levels: F (3, 128) = 18.31, p<.05.

The cognitive functioning of the four categories of estimated household income was statistically higher for higher household income (F (3, 128) = 49.54, p< .05), as shown in Table 4, 5 and 6 respectively.

Table 4
Mean differences between Age and Cognitive Functioning of Bereaved Older Adults

Variables	Younger older adults (n = 113)		Middle older adults (n = 15)		Older older adults (n = 4)		F	p	n^2
	M	SD	M	SD	M	SD			
Cognitive functioning	17.58	5.71	16.80	5.38	20.25	7.97	.57	.56	.00

Table 5
Mean differences between Education and Cognitive Functioning of Bereaved Older Adults

Variables	No education (n = 26)		Primary education (n = 13)		Secondary education (n = 54)		Tertiary education (n = 39)		F	p	n^2
	M	SD	M	SD	M	SD	M	SD			
Cognitive functioning	13.53	4.06	12.76	3.29	17.94	5.47	21.35	4.79	18.31	.00	.30

Table 6
Mean differences between Household income and Cognitive Functioning of Bereaved Older Adults

Variables	Less than Rs. 50,000 (n = 50)		Rs. 50,000-100,000 (n = 56)		Rs. 100,000 – 200,000 (n = 19)		More than 200,000 (n = 7)		F	p	n^2
	M	SD	M	SD	M	SD	M	SD			
Cognitive functioning	12.72	3.74	19.01	4.51	23.63	2.75	24.2	2.62	49.54	.00	.53

A simple comparison of the prevalence of CMCs in the bereaved and non-bereaved sample was carried out to observe the difference in both groups. The comparison revealed that the bereaved group has a greater number of individuals having CMCs in comparison to the non-bereaved group of elderly. Bereaved individuals were associated with lower cognitive functioning scores than non-bereaved older adults, t (190) = 3.36, p<.05, as shown in Table 7. The lower mean scores of cognitive functioning for the bereaved (*M*= 17.57) as compared to the non-bereaved (*M* = 20.3) indicates that bereaved individuals experience a greater decline in cognitive functioning following the death of their spouse. Thus, H3 was supported. Independent samples t-tests showed significant differences in perceived social support (t (190) = 5.03, p<.05). Non-bereaved older adults had greater levels of perceived support as in comparison to bereaved older adults as shown in Table 7. So, H3 was supported.

Table 7

Mean differences between Perceived Social Support and Cognitive Functioning of Bereaved and Non-Bereaved Older Adults

Variables	Bereaved older adults (n = 132) M	Non-bereaved older adults (n = 60) M	SD	t	p	95% CI LL	UL	d
Cognitive functioning	17.57	5.72	20.30	3.80	3.36	.00	1.12	4.32	0.56
Perceived social support	36.73	10.19	43.83	5.71	5.03	.00	4.31	9.87	0.85

The mean of cognitive functioning of the bereaved sample from this study was compared with the mean of cognitive functioning of general Indian older population taken from an Indian study (Dhupkar & Shaikh, 2020), to find whether bereaved older adults had lower cognitive functioning than average older adults. The results reported that the bereaved elderly had low scores of cognitive functioning (*M*=17.57, S. D=5.72) as compared to the general population of elderly from the Indian sample, (*M*=23.9, S. D=4.09), t (131) =-12.6, p<.05, as illustrated in Table 8.

Table 8

Comparison of Cognitive Functioning of Older Adults in the Study Sample with General Indian Older Adult Population through One Sample T-Test (Test Score = 23.9)

Variable	n	M	SD	df	t	p
Cognitive functioning	132	17.57	5.72	131	-12.69	.00

Discussion

In this study, we aimed to explore the relationship of spousal bereavement and the cognitive functioning of the older population with social support as a moderator. The cognitive functioning of bereaved and non-bereaved older adults was compared which yielded a significant difference in scores of cognitive functioning. Thus bereavement, which is an inevitable life event can challenge several aspects of an older adult's health one of which is cognitive functioning (Ataley & Staneva, 2020). The findings of our study establish that bereaved individuals experience significant deterioration in their cognitive functioning as bereavement is a critical inducer of stress, hence reinforcing the widowhood-cognition link. The difference in cognitive scores across three age groups of older adults is statistically insignificant. As the sample of our study comprises older adults, 60 and above, they fall under the same age bracket, thus identifying age-related changes in cognitive functioning within them is a difficult task as all older adults have experienced some form of cognitive aging by this point. This is in accordance with studies that postulate that a decline in cognitive functioning is a major concern for older adults (Sabia et al., 2012) with lower cognitive abilities at an older age (Deary et al., 2009). This further consolidates our understanding because age-related differences in cognitive functioning could have been better assessed if the sample consisted of both younger and older adults.

The correlation analysis between spousal bereavement, social support, and cognitive functioning of older adults yielded significant

results. The negative correlation between spousal bereavement and cognitive functioning of older adults was supported by prior literature (Ward et al., 2007). Cognitive functioning and social support scores were positive and significant. Previous studies have found a positive association between perceived social support and cognitive function in older adults (Holtzman et al., 2004; Yeh & Liu, 2003), consistent with present results. A negative, significant correlation was observed between spousal bereavement and social support. Similar findings are present in existing literature in which social support was negatively correlated with bereavement (Cakar, 2020). Similarly, the correlations between spousal bereavement and different cognitive domains were assessed. The domains of executive functioning, attention, memory and abstract thinking had significant results with cognitive functioning, indicating that bereaved older adults have poor performance on domains of executive functioning, attention, memory, and abstract thinking. However, the domain of language was insignificant with cognitive functioning. Research has demonstrated that fluid intelligence is subject to change with age whereas crystallized intelligence like language remains stable with age (Park & Bischof, 2013).

The moderating role of social support between spousal bereavement and the cognitive functioning of older adults was assessed. Perceived social support as a moderator was statistically insignificant, contradicting prior literature. The finding can be better explained by the perspective of Richardson et al. (1983), during times of crisis and upheaval, like bereavement, religion has been known to be a provider of emotional and psychological support to people. During data collection, religiosity and trust in God were frequent themes highlighting the participant's acceptance of the death of their spouse. In our sample and cultural context, it may be possible that faith and religiosity have a more important role than the combined influence of spousal bereavement and social support on cognitive functioning after the death of their spouse. This is a form of reserve for them which according to Cognitive Reserve Theory acts as a protective factor against cognitive decline (Stern, 2003). According to previous literature, another factor that was found to moderate the relationship between spousal bereavement and

cognitive functioning was marital quality before the loss of a loved one. Respondents whose relationships with their deceased spouse were ambivalent had better cognitive functioning than those who had aversive relationships with their deceased spouse (Min & Song, 2022).

Another key variable that might have contributed to the insignificant interaction effect could be the difference in lifestyles, education, and occupations of older adults. The concept of cognitive reserve has been a very important idea in cognitive decline in older adults (Baltes & Baltes, 1990). This cognitive reserve model suggests that there are certain experiences and behaviors that provide protection from cognitive decline including education, high literacy, engaging in work, and participating in leisure activities (Meng & D'Arcy, 2012). As a result, the older adults who were comparatively better educated, performed cognitively stimulating jobs, and had active lifestyles had subsequently better cognitive reserve which acted as a buffer against cognitive decline.

A small sample size can result in a non-significant moderation with the appropriate solution being collecting more data based on the sample size requirement obtained by the power analysis (Becker et al., 2018). Moreover, the majority of the studies hypothesizing the role of social support as a moderator on the relationship between spousal bereavement and cognitive functioning have been taken from Western literature, but this effect may vary across cultures. However, our study depicted that in the cultural context of Pakistan, the interaction effect of spousal bereavement and social support on cognitive functioning is not statistically significant. This has implications for future research. To add further value to the results, the mean scores of cognitive functioning of bereaved older adults from our study were compared with the mean scores of cognitive functioning of general older adults from an international sample (Dhupkar & Shaikh, 2020) to determine whether bereavement has a negative relationship with the cognitive functioning of elderly.

Implications
The study conducted will further add to the pre-existing literature regarding spousal bereavement and cognitive functioning and how social support plays a

role. Furthermore, the study provides a cultural lens on the relationship between spousal bereavement and cognitive functioning. Previous literature had mixed findings related to correlations between individual cognitive domains and spousal bereavement, so the study fills the gap by exploring these correlations. This addition to the literature can help emphasize other variables as moderators in future research. This study will also create awareness and identify factors that can have an important influence on the experience of bereavement. Once these factors are considered, it may aid them in adopting appropriate and timely interventions. The study explores the effects of demographic determinants on the cognitive functioning of older adults in a Pakistani context.

Limitations and Recommendations

This study has some limitations that need to be addressed. The scale "Montreal Cognitive Assessment" used for measuring cognitive functioning has been associated with the education level of respondents. So, the scores of MoCA can be affected by education levels in addition to the scores of bereavement. We recommend that the education of the respondents should be taken into consideration prior to administering the scale. The sample collected for this study is not representative of gender. The study contained 47 males and 145 females. The unequal representation of the sample can pose practical limitations to the study and the comparisons between the sub-groups of the sample cannot be drawn. The differential relationship between bereavement and cognitive functioning in males and females cannot be assessed significantly. So, future studies should focus on having an equal representation of gender. Similarly, another significant issue revolved around the utilization of older adults as the sample. As most of the older adults were above sixty, their attention span had deteriorated over time. So, administering three scales with multiple items to them required constant repetition and probing. Bereavement is a highly sensitive and personal matter. Older adults during data collection for this study, exhibited considerable hesitation while talking about their spouse and their experience of bereavement. Consequently, taking detailed accounts from them to support our hypothesis was difficult. Several of them also refused to participate once they heard about the sensitive nature of the study.

Conclusion

In the context of the growing old population, and increased risk of spousal bereavement with age, it is important to study the relationship between spousal bereavement and the cognitive functioning of older adults with social support as a moderator. The findings revealed that spousal bereavement and cognitive functioning are directly correlated with one another. However, social support is not a significant moderator. This study is a significant step toward investigating the possible factors contributing to cognitive decline following bereavement. Researchers and medical officials may benefit from this study in reference to designing intervention and prevention programs for older adults experiencing bereavement.

Declaration

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Research Article

Anxiety, Depression and Coping Mechanisms in Caregivers of Psychiatric Patients

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Abstract

Background. Many caregivers that serve mentally sick patients suffer from depression and anxiety and can use maladaptive coping strategies that necessarily worsen their outcomes. To gain some understanding of these psychological issues caregivers of psychiatric patients were assessed.

Method. With a systematic random sampling technique 56 male and 111 female caregivers ($N = 167$) were drawn that completed Beck Depression Inventory-Second Edition (Beck et al., 1996), Beck Anxiety Inventory (Steer et al., 1993) and Brief COPE inventory (Carver et al., 1989) along with demographic variables.

Results. About half (50%) or 84 caregivers suffered from mild to severe depression, and less than half (~46%) or 76 had mild to severe anxiety. Most patients utilized Problem-Focused coping, followed by Emotion-Focused and Dysfunctional coping.

Conclusion. The study replicates prevalence of depression and anxiety in caregivers in Pakistan and other countries.

Keywords. Caregivers, anxiety, depression, coping strategies, problem-focused coping, emotion-focused coping, dysfunctional coping, psychiatric patients.

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Introduction

Recent recommendations propose, psychiatric patients ought to be managed within the community instead of long-term institutional care (Cabral et al., 2014). Therefore, the role of caregivers has become critical in the lives of psychiatric patients (Imtiaz et al., 2021). A caregiver helps the patient with their needs and provides companionship. However, this companionship is demanding and burdensome, which can be "… emotional, physical and financial (WHO, 2019)" in nature. Caregivers are usually family members, friends or other individuals and are considered outside the health care system (Nasir et al., 2022). They provide care to psychiatric patients, which can be extremely stressful, subjecting caregivers to encumber emotional problems. In most cases, caregivers focus on the needs of the patient at the cost of their own their health. This usually results in depletion of a variety of resources, causing depression, anxiety, and burnout (Mishra & Shakya, 2021). Moreover, caregivers can experience stigmatization that degrades the situation, further (Bademli, 2017). Several studies report depression and anxiety in caregivers that care for patients with psychiatric illness is higher than in the general population, for example, Rodrigo et al. (2013) report ~38% (30 out of 80) caregivers that served psychiatric patients, suffered from depression. This is not different from a study carried out in Pakistan that reported about 41% caregivers of psychiatric patients were clinically anxious or depressed (Alvi et al., 2014). Of these about 20% of caregivers generally tend to suffer from severe depression (Thunyadee et al., 2015). However, most caregivers report elevated levels of depression (85%) and anxiety (86%) above the threshold of normalcy (Imran et al., 2010). In a systematic review, depression occurred in about half (46%) of caregivers serving patients with chronic mental illnesses (Steele et al., 2010). Greater severity of anxiety and depression were found among caregivers that cared for schizophrenic (57%) and bipolar (50%) patients; and that female caregivers were significantly ($p < .01$) more anxious and depressed than male caregivers (Steele et al., 2010). Goldstein et al. (2002) suggest depression and anxiety in caregivers in not only because they render services, but other factors also play significant role, like caregivers experience social isolation, economic difficulties, and stigmatization. Younger and less educated caregivers experience greater depression (Magaña et al., 2007), caregivers that spend more time with patients and are non-religious (Rodrigo et al., 2013), and have poor social support system (Murray-Swank et al., 2006) experience more depression.

A defensive response to depression and anxiety is coping, to cope, means to make a conscious effort to manage, buffer, and tolerate the adverse effects of stressful situations. Various coping strategies exist some can be adaptive and others maladaptive. Generally divided into three (Carver, 1997), they include problem-focused, emotion-focused and dysfunctional coping strategies. The first two strategies are considered adaptive, the last one, a maladaptive strategy. We do not know if any study has been carried out on coping strategies in Pakistani caregivers that suffer from depression and anxiety. Therefore this study is important to find this connection and come up with appropriate interventions can support caregivers (Alqutub et al., 2021).

Clinical observation of caregivers that attend psychiatric patients at Heavy Industries Taxila-Institute of Medical Sciences (HIT-IMS) Hospital, Taxila Cantonment suggest similar prevalence of depression and anxiety as reported in above literature. However, to empirically validate these observations and reveal coping mechanisms this study was designed to assess caregivers of patients that were attending this hospital. This would help in gauging prevalence of depression and anxiety, coping mechanisms and scope for interventions that would improve mental health and quality of life of caregivers.

Method

This study aimed to determine the incidence of anxiety and depression in mental patient caregivers and their coping techniques. This cross-sectional study was conducted at the Department of Psychiatry and Behavioral Sciences, HIT-IMS, Taxila Cantonment and study was approved by the Ethics Committee. Primary caregivers of the patients identified by psychiatrists, were approached by assistants of the investigators who explained the nature of the study. All those that consented

verbally were asked to complete three scales and a demographic sheet that collected information on the age, education, occupation, marital status, and relationship of caregivers to the patient. Information about the psychiatric illness of a patient, duration of caregiving, and medical and psychiatric history of the caregiver was also obtained. All data was kept confidential and anonymous, and participants were told that they could quit the study anytime if they need to with any penalty. The data were analyzed by SPSS version 28.

Sample

The sample size was calculated on estimated (19%) population for depression and anxiety in caregivers. A total of 56 male and 111 female (66.47%) caregivers ($N = 167$) was sampled at 90% confidence interval using systematic random sampling. Psychiatric illnesses of patients were diagnosed using ICD-11 (WHO, 2019) diagnostic criteria by psychiatrists working in the Psychiatric Outpatient Department of the hospital.

Assessment Measures

Beck Depression Inventory-Second Edition (BDI-II). BDI-II has 21 self-evaluative items that can be scored from 0 to 3, higher scores indicating greater severity of depression. Composite scores range from 0 to 63. A score of 0-10 is considered minimal or normal, 11-19 as mild, 20-28 is moderate, and 29-63 severe depression. One-week test-retest stability of BDI-II is high (.93) and so is internal consistency (coefficient alpha = .92-.94) depending on the sample (Beck et al., 1996). Construct validity is also high ($r = .93$) when compared to the BDI (Beck et al., 1996).

Beck Anxiety Inventory (BAI). Developed by Steer et al. (1993) BAI is a self-report inventory that measures severity of anxiety in psychiatric populations and is appropriate for use in ages 17 and above. The scale consists of 21 items, each describing a common symptom of anxiety. Each item is responded over a 4-point scale (0-3) with higher scores measuring higher anxiety. The BAI has high internal consistency (alpha = .92) and test-retest reliability over 1 week, ($r = .75$) and has mild to moderate convergent validity with revised and regular Hamilton Anxiety Rating Scales (Beck et al., 1988). A score below 8 is no anxiety, between 8-15 depicts mild, 16-25 moderate, and a score of 30-63 severe anxiety.

Brief Coping Orientation of Problems Experienced (Brief-COPE) Inventory. Brief version of the COPE (Carver et al., 1989) contains 28 items. Each item is ranked on a 4-point scale, ranging from 0 (*I haven't been doing this at all*) to 3 (*I've been doing this a lot*), with higher scores represent greater coping style. The 14 subscales are divided into three domains, Problem Focused Coping (8 items), Emotion Focused Coping (12 items). Dysfunctional Coping (8 items) were higher scores represent greater use of that strategy (Carver, 1997). Internal consistency of Brief-Cope ranges between (Cronbach alpha = .72-.84) reported by DeDios-Stern et al. (2017) and acceptable construct validity (Wise et al., 2023).

Results

Most caregivers, i.e., 60 (39.5%), falling within the age range of 40-49 years, followed by 35(21%) caregivers falling within the age range of 30-39 years, 33(19.8%) caregivers within the age range of 50-59 and 30 (18%) within the age range of 19-29 years. Out of 167 participants recruited in the study, 56 (33.5) were males, and 111(66.5%) were females. On BDI, 84 caregivers were diagnosed with Depression, while on BAI, 76 caregivers were diagnosed with Anxiety. The levels of Depression and Anxiety are shown in Table 1.

Table 1

Frequencies and percentages of Demographic variables of the study

Variables	Categories	f	Percentage %
Age Range			
	19-29	30	18.0 %
	30-39	35	21.0 %
	40-49	60	35.9 %
	50-59	33	19.8 %
	60-69	9	5.4 %
Gender			
	Male	56	33.5 %
	Female	111	66.5 %
Education			
	Illiterate	26	15.6 %
	Middle	31	18.6 %
	Matric	15	9.0 %
	FA	42	25.1 %
	BA	35	21.0 %
	Masters	18	10.8 %
Relationship with Patient			
	Housewife	68	40.7 %
	Laborer	16	9.6 %
	Officer	12	7.2 %
	Guard	10	6.0 %
	Technician	32	19.2 %
	Teacher	27	16.2 %
	Student	2	1.2 %
Total		167	100 %

Table 2

Descriptive Statistics of Levels of Depression & Anxiety

BDI Scores			BAI Scores		
Level of Depression	Number of Caregivers	Percentage	Level of Anxiety	Number of Caregivers	Percentage
No Depression	83	49.7%	No Anxiety	91	54.5%
Mild Depression	20	12.0%	Mild Anxiety	25	15.0%
Moderate Depression	35	21.0%	Moderate Anxiety	35	21.0%
Severe Depression	29	17.4%	Severe Anxiety	16	9.6%

It can be seen from Table 2 that the majority of caregivers had moderate Depression and moderate Anxiety.

Table 3

Chi-square test of independence of Levels of Anxiety and Depression among Caregivers according to Gender

	Gender Distribution in Terms of Levels of Depression				
Gender	No Depression n (%)	Mild Depression n (%)	Moderate Depression n (%)	Severe Depression n (%)	p
Male	23 (41.1%)	12 (21.4%)	8 (14.3%)	13 (23.2%)	
Female	60 (54.1%)	8 (7.2%)	27(24.3%)	16 (14.4%)	0.012
Total	83 (49.75%)	20 (12.9%)	35 (21%)	29 (17.4%)	

	Gender Distribution in Terms of Levels of Anxiety				
Gender	No Anxiety n (%)	Mild Anxiety n (%)	Moderate Anxiety n (%)	Severe Anxiety n (%)	p
Male	33 (58.9%)	7 (12.5%)	7 (12.5%)	9 (16.1%)	
Female	58 (52.3%)	18 (16.2%)	28 (25.2%)	7 (6.3%)	0.065
Total	91 (54.4%)	25 (15%)	35 (21%)	16 (9.6%)	

The chi-square test of independence showed a significant correlation between gender and depression levels ($\chi2 = 10.9$, df = 3, p = 0.012). Male carers had greater rates of severe depression (23.2% vs 14.4%) and female carers of moderate depression (24.3%). No significant correlation was found between gender and anxiety levels ($\chi2 = 7.22$, df = 3, p = 0.065).

Table 4

Comparison of Coping Mechanisms: One-way repeated measures ANOVA of the three coping mechanisms

Coping Mechanisms	M	SD	p
Problem Focused Coping	55.4	13.1	
Emotion Focused Coping	38.8	9.5	0.001
Dysfunctional Coping	34.7	8.7	

The Table 4 shows that the maximum number of patients used Problem Focused Coping, followed by Emotion-Focused Coping and Dysfunctional Coping.

Table 5

Pearson's Correlation of BDI & BAI Score with Type of Coping Mechanism

	Coping Mechanisms	r	p
BDI	Problem Focused Coping	.389	.001
	Emotion Focused Coping	.567	.001
	Dysfunctional Coping	.561	.001
BAI	Problem Focused Coping	.749	.001
	Emotion Focused Coping	.543	.001
	Dysfunctional Coping	.520	.001

Using Pearson's correlation coefficient (r), the associations between depression (BDI-II scores), anxiety (BAI scores), and the three coping strategies measured by Brief-COPE were evaluated. Each correlation was statistically significant—$p < 0.001$. Table 5's correlation coefficients (r) indicate modest to high positive correlations ranging from 0.389 to 0.749. While for BAI scores the highest link was with Problem Focused Coping (r = 0.749), for BDI-II scores Emotion Focused Coping (r = 0.567) showed the strongest correlation. These findings imply that, with different degrees of connection, the usage of all coping mechanisms also usually increases when depression or anxiety levels rise.

Discussion

A considerable number of the caregivers of psychiatric patients at HIT Hospital Taxila Cantt reported moderate levels of both anxiety and depression. The study's emphasis on the 40–49 age range is consistent with Rodríguez-Agudelo's 2010 results, which named relationship, gender, and educational level as significant demographic characteristics linked to anxiety and depression. (Rodríguez-Agudelo et al., 2010). The study's focus on women also fits with the results of Ahmad and Thaneerat 2016, who discovered a

strong correlation between depression and women. (Mohammad Sayeed Ahmad et al., 2023; Thaneerat et al., n.d.). Ahmad 2023's results, which revealed a somewhat positive association between stress and coping state, are compatible with the study's identification of coping mechanisms. These results are in line with earlier studies that have likewise demonstrated a significant incidence of these mental health problems among carers (Mohammad Sayeed Ahmad et al., 2023; Pasquier & Pedinielli, 2010). Problem-focused coping was the most often employed technique, the survey

also revealed, followed by dysfunctional coping and emotion-focused coping. This is consistent with earlier studies showing how crucial coping mechanisms are to controlling carer stress. (Bjørkløf et al., 2017; García-Alberca et al., 2012; Kleinke, 1988; Saeed et al., 2019). The need for efficient coping mechanisms in this population is further shown by the positive link between depression and anxiety scores and all three kinds of coping mechanisms. (García-Alberca et al., 2012). Research has shown that carers frequently deal with moderate to severe stress. (Darlami et al., 2016; Tasmin et al., 2021), and that depression is significantly correlated with age and gender (Idrees et al., 2022). Problem- and emotion-focused coping methods are widely employed (Darlami et al., 2016; Novysedláková et al., 2018). Positive reframing and self-distraction have been linked to reduced psychological discomfort (del-Pino-Casado et al., 2019). Distress can be increased, meanwhile, by using unhealthy coping mechanisms like substance abuse and denial (del-Pino-Casado et al., 2019). Gender plays a part in coping mechanisms as well; men and women employ various coping mechanisms according to how they see mental illness (Kłak & Ozga, 2020).

Conclusion
Family members of people with mental health issues are often also the recipients of stress, worry, and depression experienced by the sufferers themselves. Because of this finding, developing psycho-educational programs to ease the stress on those who care for people with mental illness is crucial. The results of the study add to the expanding body of knowledge, emphasizing the heavy psychological load that middle-aged women who care for psychiatric patients bear. These results support the need for a comprehensive strategy that tackles the underlying mental health problems this vulnerable group faces, in addition to encouraging adaptive coping strategies. In the end, healthcare professionals may improve the standard of care given to people with mental health conditions while promoting the general well-being of caregivers and their families by offering thorough support and giving them useful coping mechanisms.

Declaration

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Research Article

A Cross-cultural Analysis of Optimism Level, Academic Achievement, and Subjective Happiness among University Students

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Abstract

Background. This study examined the influence of university students' optimism on their academic performance and subjective well-being in two provinces of Pakistan, Punjab and Khyber Pakhtunkhwa.

Method. The sample comprised 301 university students from Punjab (n=151) and Khyber Pakhtunkhwa (n=150), with a distribution of 130 men and 171 females. Convenient sampling was employed for data collection.

Results. The correlational study found a statistically significant positive relationship between university students' optimism, academic accomplishment, and subjective happiness. The statistical research further reveals that optimism is a powerful predictor of subjective satisfaction and academic accomplishment among university students. An analysis of gender revealed that females exhibit higher levels of subjective pleasure and academic achievement compared to males. Moreover, the comparison analysis indicated that students from Khyber Pakhtunkhwa (*KP*) universities exhibit higher levels of optimism and obtain superior academic results compared to their counterparts from universities in Punjab.

Conclusion. The findings of this study will be advantageous for future researchers and professionals in psychology and counseling, as they can utilize them to cultivate positive coping strategies in young individuals. This, in turn, can lead to improved academic prospects and enhanced personal well-being.

Keywords. Optimism level, academic achievement, subjective happiness, university students, cross-cultural study.

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Introduction

The educational environment in Pakistan has become more competitive, leading to increased stress and challenges for university students. University scholars need to achieve excellence to serve after getting a degree to earn a better future in the practical field. So, there is constant worry about the future and a lot of daunting news available about the value of a degree, challenges in the job market, economic conditions, etc. As a result, the university environment is structured to promote learning, optimism, and critical thinking by presenting students with academic difficulties. Optimism is essential for success, and it refers to a person's predisposition to expect good and positive outcomes in general when confronted with negative situations in life (Hoy et al., 2006). Optimism is a good personality trait that has easily attracted new trends in the field of mind sciences such as psychology throughout the last two decades (Peterson, 2000). According to Nupur and Mahapatro (2016), happiness is like energy, liveliness, motion, and enthusiasm, and it may also combat stress and negative thoughts in human existence. Sarouni et al. (2016) stated that failure and painful circumstances are not the only things that have a significant impact on a person's pessimism; rather, people's coping strategies have a stronger impact on their achievement inclinations in life. Thus, optimism is required when dealing with difficult occurrences in life. According to control theory, self-regulatory performance is an important component of optimism in a person's life. It also holds that people may continue to progress and attain their goals in good circumstances, regardless of the difficulties in their path (McGuigan & Hoy, 2006).

Optimism in academics is considered a construct including three dimensions, firstly collective efficacy of faculty members, mutual trustworthiness between parents and students along with faculty, and the university's academic emphasis. It was narrated specifically that optimism in education is like an interactive belief system that the university faculty can help students to acquire good grades and to cooperate with the parents of the students in this venture. It also affirms students that can achieve their academic goals with great success (Moksnes & Espnes, 2012). It has been noticed through different studies that university scholars are usually disheartened about their studies and future *GPAs'* due to pessimism which can lead them towards serious psychological harm and more negative thoughts, depression, and in severe cases even suicide (Parmar, 2014). Due to such negativity, students usually become the victim of cognitive distortions overgeneralize their problems, and lose control over their minute daily life activities and adaptive behaviors (Wagner & Dipaola, 2011). For being successful in academics it's mandatory to function optimistically. For achieving such optimal functioning in education, skills like establishing an optimistic approach toward life have been proven to be beneficial for students to improve their self-concept, academic grades, and interpersonal relationships as well (Scott et al., 2004). Earlier research indicated that optimistic students could handle adversity and face challenges more appropriately and happily than pessimists and this has psychological benefits as well (Brissette et al., 2002). Optimistic students have better task orientation and performance than pessimists (Norem & Chang, 2002; Shaheen, 2015). Optimism has behavioral roots, and it allows people to be more successful, happier, and healthier in life and has a significant relationship between the happiness of a being with optimism (Lopez et al., 2003).

Establishing optimism within an educational institute caters to the mindset that is invaluable and precious, and it also motivates all the educationists and staff members to get engaged in the university students' academic achievement. Optimism is a part of positive thinking, and a layman can define it as seeing the glass of water as half full and looking silver lining around the black clouds (Sarouni et al., 2016). Research findings explained that the relationship between optimism and its opposite has a direct link with academic achievement and job-related traits like career maturity, decision-making, and career goals among university students (Creed et al., 2002).

Previous studies on gender differences indicated that male participants have more career orientation and goal-directed behavior due to optimism level than female participants, males seemed to be more mature than females in this regard (Petrone, 2000). Another study revealed that positive thinking skills lead to happiness and higher academic grades (Urry & Gross, 2010). Gender studies revealed that if males believe and become

optimistic in life then they feel that they have control over their choices and can make better performance in life and academics as well while females have the positive impact of optimism for their striving toward goals (Srivastava & Agarwal, 2013). Some contradictory literature shown in studies like those of Tkach and Lyubomirsky (2006) that happiness-increasing strategies have non-significant gender differences, and they concluded that men and women respond to happiness in the same way.

Moradi et al. (2014) studied the association between students' optimism and their grades among university males showing that there is a positive significant relationship between the variables mentioned. It was seen that the happiness of students is at the edge due to the negative traits in their personalities like pessimism and despair, at a young age (Snyder & Lopez, 2001). It has been mentioned in a study that strengthening resilience, a high level of achievement, and satisfaction have a deep association with happiness. University students with higher achievement and good grades are more satisfied in their lives than low achievers. This is due to their way of seeing situations with positivity in life (Saleem & Rafique, 2012). Optimistic students have higher levels of well-being than others who have pessimistic thoughts and personality traits (Lai & Yue, 2014). Happy students perceive things better, are safer, and are more confident about the future. They are more cooperative and supportive towards fellows and make sound decisions (Bachman et al., 2011). Empirical evidence indicates that the physical and mental wellbeing of scholars depends on traits like optimism, self-esteem, academic success, extraversion, and happiness (Scheier et al., 2001).

Given the literature, the present work was formulated because there was no substantial data available in past research regarding comparative studies in different Pakistani provinces. University students from Punjab and Khyber Pakhtunkhwa (KP) were selected for the present study as they have varied cultural and environmental influences on the mental state of the pupils. The students of these provinces have different approaches toward life and academics due to different situational factors. So, to see the characteristics like optimism and happiness along with the academic achievement of university students, the following hypotheses were formulated.

Method

Hypotheses
1. Optimism level positively predicts university students' academic achievement and subjective happiness.
2. There are differences in scores on optimism level, academic achievement, and subjective happiness among university students of both provinces.
3. There are gender differences in optimism level, academic achievement, and subjective happiness of university students.

Sample & Design
The study drew 301 participants overall, 150 from universities in Khyber Pakhtunkhwa and 151 from institutions in Punjab. Rather than by random selection, participants were picked using a convenience sampling method—that is, based more on their availability and accessibility to the researchers. This approach guaranteed effective data collecting from the larger population. Participants were mainstream students including graduates (*n*= 200) and postgraduates (*n*= 101).

Exclusion Criteria. The present study did not include university students undergoing psychiatric or physical treatment. The study excluded students who faced challenges in comprehending the basic English language.

Assessment Measures

Life Orientation Test-Revised (LOT-R). It is a 10-item scale developed by Carver, Scheier, and Bridges (2013). It has 5-point Likert-type scoring, and responses ranged from 1 = I agree a lot to 5 = I disagree a lot. Reverse scoring items included items 2, 5, 6, and 8. Responses were summed (after reversals as needed) such that higher scores represent a high level of optimism. Alpha reliability is from 0.69 to 0.72 (Wimberly et al., 2008).

Subjective Happiness Scale (SHS). A 4-item scale was developed by Lyubomirsky and Lepper (1999). It has the 7-point Likert type scoring, where a higher score reflects more happiness in the individual. The alpha reliability ranged from 0.79 to 0. 94 (Schwartz

et al., 2002).

Academic Achievement measure. It was measured by the *CGPA* of university students.

Procedure

Initially, the heads of the departments were briefed on the objectives of the study as well as its characteristics. After that, the participants were inquired about their willingness to give their informed permission. The participants in the study were chosen for the study based on certain criteria that were used to exclude them. Following the completion of the demographic form, the directions to subsequently complete the connected surveys were then followed. The scales for the study were given out in a group setting during the hours that the university was open. After the completion of the scales, participants were questioned about any questions or concerns they might have. This was done to eliminate the likelihood of any misconceptions regarding the scales.

Results

Table 1
Descriptive properties and reliability coefficient of study variables (N=301).

Variables	K	α	M	SD	Range Min	Max
Life Orientation Test-Revised	10	.68	28.14	3.98	15	39
Subjective Happiness Scale	04	.90	21.94	3.12	14	28

Findings in Table 1 indicated descriptive properties of Life orientation and subjective happiness scale of university students. The reliability coefficient shows high internal consistency among the items of optimism and happiness scales.

Table 2
Linear regression analysis showing the effect of optimism level on academic achievement & subjective happiness of university students (N=301).

		Academic Achievement 95% CI	
Variable	$β$	LL	UL
(Constant)	2.3***	1.5	2.4
Optimism Level	.046***	.03	.06
R^2	.097		
F	31.94***		

		Subjective Happiness 95% CI	
Variable	$β$	LL	UL
(Constant)	19.04***	16.53	21.54
Optimism Level	.10*	.12	.18
R^2	.016		
F	4.98*		

Table 2 indicated linear regression analysis with optimism level as the predictor variable whereas academic achievement and subjective happiness as outcome variables. The findings showed that optimism level positively predicts academic achievement ($p<.001$). The .10 value of R^2 indicates that the model explains 10% of the variance. Similarly, the findings also showed that optimism level positively predicts the subjective happiness of university students ($p<.05$). The .02 value of R^2 indicates that the model explains 2% of the variance. This confirms hypothesis 1.

Table 3

Mean, standard deviation, and t-values on optimism level, academic achievement, and subjective happiness among university students of Punjab and Khyber Pakhtunkhwa (N=301).

Variables	Male (n=130)		Female (n=171)		t (299)	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Optimism Level	28.15	4.3	25.40	3.6	.016	.001	.91	.92	0.69
Academic Achievement	3.21	.60	3.42	.56	-3.07	.002	-.34	-.07	0.36
Subjective Happiness	19.64	2.9	22.32	3.17	-5.18	.002	-1.7	-.39	0.88

	Provinces								
	Punjab (n=151)		KP (n=150)						
Variables	M	SD	M	SD					
Optimism Level	26.17	3.7	30.13	3.1	-19.9	.000	-4.7	-3.18	1.16
Academic Achievement	3.18	.55	3.48	.59	-4.54	.000	-.42	-.16	0.53
Subjective Happiness	22.82	3.8	20.87	4.0	20.3	.000	8.23	1.27	0.50

Table 3 indicated the significant mean differences, standard deviation and t-values of optimism level males (*M*=28.15, *SD*=4.3) and females (*M*=25.40, *SD*=3.6), academic achievement males (*M*=3.21, *SD*=0.60) and females (*M*=3.42, *SD*=0.56) and subjective happiness males (*M*=19.64, *SD*=2.9) and females (*M*=22.32, *SD*=3.17) with *t* (299) = 0.01, -3.07, -5.18, *p*<.01 respectively. Furthermore, table 3 showed the significant mean differences, standard deviation, and t-values of optimism level among university students from Punjab (*M*=26.17, *SD*=3.7) and *KP* (*M*=30.13, *SD*=3.1), the academic achievement of university students of Punjab (*M*=3.18, *SD*=0.55) and *KP* (*M*=3.48, *SD*=0.59) and subjective happiness of Punjab (*M*=22.82, *SD*=3.8) and *KP* (*M*=20.87, *SD*=4.0) university students with *t* (299)= -19.9, -4.54, 20.3, *p*<.001 respectively. This table confirms the hypotheses 3 and 4.

Discussion

The present study was conducted on university students in two provinces of Pakistan: Punjab and Khyber Pakhtunkhwa. This present work examined the effect of the optimism level of university scholars on their academic achievement and subjective happiness. It has been found that optimism is a strong predictor of students' high grades and happiness. Here cross-cultural study was essential for understanding how psychological concepts like optimism, academic accomplishment, and subjective satisfaction vary between cultures. Considering optimism's cultural roots can assist evaluate whether it's generally beneficial or if it's influenced by culture, society, or education. Cross-cultural analysis helps us understand if academic performance determinants are the same across cultures or modified by cultural expectations and educational techniques. Studying subjective pleasure in numerous cultures can reveal how cultural perceptions and experiences of happiness affect well-being. This study uses cross-cultural research to find universal and culturally specific relationships between optimism, academic achievement, and subjective happiness. Creating psychologically informed theories and interventions that are culturally sensitive and can be implemented in many educational and social settings requires this understanding.

The first hypothesis stated that optimism level positively affects university students' academic achievement and subjective happiness. The statistical outcome was significant, and the hypothesis has been accepted (Table 2). This result confirmed the previous research as Roothman et al. (2003) indicated that optimism positively affects pupils' achievement in public educational institutions. Another study of university students found that their optimism referred to the mode of life that can anticipate the way these students think, feel, and act in different circumstances. University pupils with the ability to anticipate positive outcomes are likely to become part of career-related activities, set vocational goals, and have healthy emotions. They can accomplish more in life and have happy outcomes (Bastianello et al., 2014). Optimism has a positive regulatory role in men's and women's academics and career achievements (Perez, 2012). It was found in the previous study that happiness has a strong positive effect on the hopefulness, optimism, forgiveness, and excitement levels of people (Froh et al., 2009).

The second hypothesis investigated the differences in scores on optimism level, academic achievement, and subjective happiness among university students of both provinces. The statistical outcomes indicated that *KP* students have higher optimism levels and academic achievement than the university students of Punjab (Table 3). On a general and cultural basis, the students who came up to the level of the university have optimism and they already secured good grades at the higher secondary level as well. So, they have the attitude of doing hard work with a positive, optimistic approach and earning good grades in their degrees. In this way, they can draw a high professional competency not only in their province but at national and international levels as well. Another factor is that; the *KP* students have strong faith in future blessings, and they remain more optimistic even in strict environments and hard circumstances while Punjab students are more practical in their approach and tend to be happier in the presence of opportunities they receive in their province. Whilst the statistical results indicated that subjective happiness is more in the university students of Punjab it might be ascribable to the varied activities that can divert the pressure of studies from their minds. In Punjab, girls have equal opportunities of exhibiting their talent and academic achievements while in *KP*, situations are a little harder for girls which might be the reason for their low level of happiness.

Lastly, it was hypothesized that there are gender differences in university students' optimism level, academic achievement, and subjective happiness. Results were significant (Table 3) and have consistent findings which previous literature proclaimed on the similar variable. It was explored in earlier studies that females analyze their happiness based on higher self-esteem, closed family ties, and religion, whereas males record their happiness by their relaxation, leisure, and mental control; hence females are more prone to happiness than men (Reid, 2004). Past research suggested that happiness is linked with influencing factors

like subjective well-being for a female more than males (Nupur & Mahapatro, 2016). The literature revealed that university male students are more optimistic than females and males of middle age and later phases of life (Wani et al., 2016). It was recorded in past research that happy females have better academic results than males and pessimistic female companions (Gorsy & Panwar, 2016). Another research found that females are more prone to happiness (Jiang et al., 2016). Because of the above-stated outcomes; this study would be helpful for researchers working on comparative studies among Pakistani provinces.

Conclusion

The research outcomes provided an understanding that optimism level has a strong positive influence on the happiness and academic grading of university students. This further revealed that all three variables are positively correlated with each other and gender differences along with the provisional differences were also present. The study literature regarding the comparative analysis of Punjab and *KP* was scarce. Present work could prove valuable for the Pakistani researchers to take this work further and to aid students in improving their optimism level, and happiness and to yield better grades in fast pace competitive environment. Educational psychologists and counselors of both provinces can take advantage of this study; to enhance the motivation and optimism level of university students.

Limitations and Suggestions
Though the present study was done with utmost effort and intent of best possible accuracy, a few shortcomings were considered by the end of the research.
1. The sample collected in this study was not taken through random sampling which may limit the extent of representativeness of this study.
2. More reliable results could be yielded by gathering data from all over Pakistan.
3. Qualitative research designs and more demographic and geographic variables could be included for future studies with similar constructs.

Declaration

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Research Article

Translation and Validation of Athletic Coping Skills Inventory on Pakistani Women Sport Players

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Abstract

Background. Sport players during competition face different types of stressors. The coping ability of sport players towards stress is considered one of the major factors in determining the level of function or performance in any performance (Lopes Dos Santos et al., 2020). The objective was to translate and validate the Athletic Coping Skills Inventory on women sport players in Pakistan. The lack of English language skills held by sport players has been highlighted quite often which raised the need for translation of measuring tools.

Method. This study had two phases. In the first phase, the scale was translated according to guidelines provided by Gudmundsson (2009). In the second step, data collection, from 302 women sport players, was done by using the snowball purposive sampling technique. Women sport players playing at international, national, university, club, and college levels with at least one year of experience were included in this study.

Results. The factor structure confirmed 26 items of the scale with seven subscales. Results confirmed an adequate model fit indices as Root Mean Square Error of Approximation = .04, Comparative Fit Index = .92, Tucker-Lewis Index = .90, and Incremental Fit Index = .92. The results indicated the Cronbach's alpha reliability of .86.

Conclusion. Thus, it was concluded that the Athletic Coping Skills Inventory is a reliable scale for measuring the coping skills of sport players in Pakistan. It may prove helpful in designing interventions in various fields related to sport for athletes. Moreover, it will help the inclusion of such athletes in research who lack command of the English language.

Keywords. *Urdu translation, validation, Pakistan, women athletes*

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Introduction

Sport players during competition face different types of stressors. It may include stress due to psychological demands, lacking confidence, fear, stress induced by the coach, injury, or due to any other on-field issue (Cosma et al., 2020; Dale, 2000; Gould et al., 1993; Holt & Hogg, 2002; Nicholls et al., 2005). The coping ability of sport player towards stress is considered one of the major factors in determining the level of function or performance in any sport performance (Lazarus, 2000). That is why the concept of coping holds importance in the literature related to the field of sport psychology. Sport players of all ages or any sport type face stress during the performance and to excel in performance and to have a satisfying experience they need strategies to cope. According to Lazarus and Folkman, (1984), coping is defined as "continuous change in behavior and cognitions efforts, which are carried out to manage specific internal and external demands, which exceed the limited resources of individuals". Sport players have a variety of coping skills which are displayed in case of stressful situations. Higher-order coping skills have been identified by the researchers which are situation and intention-based (Crocker et al., 1998). According to Nicholls and Polman (2007) emotion and solution-focused coping strategies are widely used. Both works differently, one works for altering the situation, and the other works for dealing with emotional issues linked to a situation (Carver et al., 1989; Lazarus, 2000; Lazarus & Folkman, 1984). Other skills include various positive and negative strategies. Avoidance coping which is both psychological and behavioral is an effort to divert attention from the stress-causing situation (Krohne, 1993). According to Roth and Cohen (1986) in the approach of coping strategies, individuals confront the source and try to reduce it by effort. Cox and Ferguson (1991) stated that in appraisal-focused coping individuals reevaluate the scenario and restructure it to minimize its importance. Lack of coping skills to deal with stress, results in withdrawal from sport (Klint & Weiss, 1986; Smith, 1986) spoiled performance (Lazarus, 2000), and inability to pursue the profession of sport (Holt & Dunn, 2004).

Goyen and Anshel (1998) explained that emotion-focused and solution-focused coping strategies have been used by sport players irrespective of gender. However significant differences have been found in the type of coping strategies which are used by them. Problem-focused coping strategies have been preferred by men sports players for responding to stresses like criticism, injury, and pain. However, for responding to such stressors, emotion-focused coping strategies have been preferred by women sport players (Anshel et al., 1998; Madden et al., 1989). These findings that women sport players prefer emotion-focused coping techniques and men sport players prefer solution-focused coping strategies, were also confirmed by Yoo (2001). Moreover, transcendental coping techniques have also been used by women. It was reported by Hammermeister and Burton (2004) that uncomfortable and stressful situations are identically appraised by both genders, but their coping strategies are different. Men were reported as using techniques of suppression and association whereas Women were reported as using techniques of dissociation, positive reinterpretation, venting out of emotions, and more use of social support. This notion that women demand support from the social circle for coping with stressors has been confirmed by other studies (Campen & Roberts, 2001; Crocker & Graham, 1995; Kolt et al., 1995; Philippe et al., 2004). However, a study conducted by Anshel and Delany (2001) has reported that there are similarities, among both genders in the use of wishful thinking patterns and social support as coping. Crocker and Graham (1995) and (Kolt et al., 1995) found no differences in both genders in using problem-focused strategies as a coping technique. Moreover, the findings showed that emotion-focused coping techniques are more preferred by women sport players than men sport players.

The studies conducted by Pensgaard et al. (1999) and Bebetsos and Antoniou (2003) found no significant difference in coping based on gender when players are exposed to stressful situations in sport. The effectiveness of coping strategies in the field of sport refers to the level of alleviating negative feelings and emotions that are the result of stress. The alleviation of stress is considered a successful effect of the specific coping strategy. Depending on the situations and levels of control sport players have on the ongoing situation, it was suggested that when players have self-control then problem-focused

will be useful whereas when players have little self-control then the coping technique of emotion-focused will be more effective. It is also known as the goodness of fit model (Folkman, 1992).

The prevailing assumption about sport players of Pakistan, that they lack English language skills, compelled the translation of measuring tools into the Urdu language. Dar (2013) stated that sport stars of Pakistan lack proficiency in the English language. So, to overcome the language barrier and to get reliable data, the Athletic Coping Skills Inventory was translated into the Urdu language after getting confirmation of the unavailability of this scale in Urdu and getting permission from the Author.

The Athletic Coping Skills Inventory was translated in this study to measure the coping styles of women sport players. There are many scales available to measure the coping styles of individuals like The COPE (Carver et al., 1989), Coping Strategies Questionnaire (Tobin et al., 1989), Coping Response Inventory (Rosenstiel & Keefe, 1983), and Ways of Coping Questionnaire (Folkman & Lazarus, 1988), but this measure was preferred as it is designed specifically for athletes and it has been used with the sample of sport persons in many types of research and has been translated into many other languages (Miranda et al., 2018; Ozcan & Gunay, 2017; Sanz et al., 2011; Vičar et al., 2021) which built its credibility for using it as having acceptable reliability and validity.

Women sport players were specifically considered for validation of the translated version because Muñiz et al. (2014) believe that separate measures for men and women are necessary since the majority of economic, demographic, and social differences reflect gender-based behavioral differences. Moreover, it is believed that the already existing theories may not be generalized to Pakistan (Qurban et al., 2018) due to its religious and cultural differences from Western countries.

Objectives

The following were the objectives of this study:
1. To translate the English version of the Athletic Coping Skills Inventory into the Urdu language
2. To validate the Urdu version of the Athletic Coping Skills Inventory

Method

To achieve the above-mentioned objectives, the study was conducted in two phases. Phase 1 constitutes a translation of the instrument and in phase 2, validation of the instrument was done.

Phase 1 - Translation of Athletic Coping Skills Inventory from English to the Urdu Language
Athletic Coping Skills Inventory - 28(ACSI) was developed by Smith et al., (1995). It has 28 items in total and seven subscales, each having four items. The subscales are coping with adversity, peaking under pressure, goal setting/mental preparation, concentration, freedom from worry, confidence, achievement motivation, and coachability. It has four response options (i.e.) almost never (1), sometimes (2), often (3), and almost always (4). It has 6 reverse coded items (i.e.); item numbers 3, 7, 10, 12, 19, and 23. A low score indicates fewer coping skills whereas a high score indicates more coping skills in sport players.

Translation procedure. Guidelines provided by Gudmundsson (2009) were followed for the translation of ACSI. First of all, permission from the author was taken for translation.

Forward translation. MPhil/ MS qualified bilingual experts and independent translators (n=3) were requested to translate this scale into the Urdu language. They belonged to the Psychology field. They were requested to translate in easy-to-understand and clear language with linguistic equivalences.

Committee approach. The committee approach was conducted with three bilingual experts. A booklet of translations along with the original, the English version, was emailed to them. The online committee meeting was held. They were requested to review each item and instruction from three translations for selecting or constructing the most appropriate Urdu version of the scale.

Backward translation. Then the forwarded translated scale was again translated into the English language. Again, three MPhil/ MS qualified bilingual experts and independent translators were requested to

translate this scale into the English language. They were requested to translate the scale by considering the semantic equivalence.

Committee approach. An again online committee meeting was conducted with the three bilingual experts. Then similarities and differences between the original English version of ACSI and those translations were evaluated. Most of the statements were given the same meaning and had the same words. However, statements showing discrepancies were then considered in the Urdu version and then the wording of those statements was provided by experts. Then meanings of those words were asked by a few fellow researchers to get to know whether the word had the same meanings and comprehension according to others or not. And then translation in the Urdu language was finalized and after that, the backward translation was emailed to the author.

After the finalization of the Urdu translation of the Athletic Coping Skills Inventory, the instrument was given to ten bilingual experts to recheck the relevance and semantic structure of all Urdu items. After their approval, the translated version was field-tested for comprehensibility, and data was collected for validation purposes.

Phase 2: Validation of Athletic Coping Skills Inventory Urdu version

In the second phase validation of Urdu, the Athletic Coping Skills Inventory was achieved by establishing the construct validity through item-total correlation and Confirmatory Factor Analysis.

Sample

Three hundred and two women sports players playing at international, national, university, club, and college levels with at least one year of experience were included in this study. Everitt (1975) suggested the ratio of at least 10 participants for 1 item (i.e. 10:1) is enough for validation purposes. The sample of 302 was hence adequate. The sample of the study was collected through snowball and purposive sampling as the sample has specific criteria.

Procedure

Data was collected by using both online Google forms and physical visits to sports academies in Lahore and Islamabad. Permission was taken from authorities before meeting the sport players. Questionnaires were also distributed to relevant persons (coaches and sport management staff) when meeting the women sport player was not feasible or allowed. The written consent form was provided to participants and they were informed that they are allowed to withdraw from the study at any time. They were ensured in the consent form that their privacy and confidentiality would be ensured. Their names or names linked with their email addresses with which Google Forms will be filled were not required and they were informed that the data collected will only be used for research purposes. Clear instructions were mentioned in Google Forms for a better understanding of the sample. The email address of the principal researcher was mentioned on the consent form for contact in case of any problem.

Results

Establishing construct validity (CFA) of ACSI
Item total correlation and corrected item correlation
Construct validity was established on the sample of 302 women sport players in Pakistan.

Table 1
Item total correlation and corrected item-total correlation of Athletic Coping Skills Inventory- Urdu (N=302).

Item no.	Item total correlation	Corrected item-total correlation	Item no.	Item total correlation	Corrected item-total correlation
1	.47	.41	15	.54	.47
2	.53	.47	16	.65	.60
3	.35	.27	17	.62	.56
4	.53	.47	18	.37	.29
5	.58	.52	19	**-.05**	**-.13**
6	.37	.29	20	.35	.28
7	**-.21**	**-.29**	21	.54	.48
8	.48	.42	22	.54	.48
9	.58	.53	23	**.09**	**.01**
10	.46	.39	24	.49	.42
11	.32	.24	25	.41	.34
12	.44	.37	26	.60	.55
13	.41	.34	27	.58	.53
14	.48	.41	28	.50	.44

Table 1 shows the item-total correlation of the initial form of scale. Most of the item has an item-total correlation above 0.30 which is acceptable (Cristobal et al., 2007; Ramos-Jiménez et al., 2018). Table 1 also shows that the corrected item-total correlation of most of the items was above .23 which is an acceptable range according to Bujang et al., 2012). Three items (i.e., 7, 19, and 23; bolded in table) had an unacceptable item-total correlation and low corrected item-total correlation but after qualitative analysis, they were retained and none was deleted initially as the scale is already a standardized scale with good reliabilities. The decision of item deletion was left for confirmatory factor analysis.

Table 2

Factor Loading of Confirmatory Factor Analysis for Athletic Coping Skills Inventory- Urdu (N=302).

Item #	λ	Item #	λ	Item #	λ	Item #	λ
1	.44	8	.70	15	.49	22	.62
2	.56	9	.67	16	.65	23	.28
3	.53	10	.62	17	.63	24	.45
4	.60	11	.30	18	.49	25	.39
5	.57	12	1.04	**19**	-	26	.61
6	.46	13	.38	20	.47	27	.60
7	-	14	.47	21	.54	28	.45

Table 2 shows factor loading on each item, obtained through confirmatory factor analysis.

Table 3

Confirmatory Factor Analysis (Indices of model fit) for Athletic Coping Skills Inventory-Urdu (N=302)

Model	x^2(df)	CFI	IFI	TLI	RMSEA	Δx^2(df)
M 1	597.72 (278)	.82	.83	.79	.06	
M 2	397.67 (256)	.92	.92	.90	.04	200.04 (22)

Note. M1= Default model of CFA for Athletic Coping Skills Inventory, M2= model after adding error covariance, CFI= Comparative Fit Index, IFI= Incremental Fit Index, TLI= Tucker-Lewis Index, RMSEA= Root Mean Square Error of Approximation, x^2= Chi-Square.

Table 3 shows the good model fit indices for the Athletic Coping Skills Inventory for the sample size of 302 for this study. The default model 1 shows a poor fit. Then covariance was added and the model was revised. The model is considered acceptable if the Normal Fit Index is greater than .90 (Byrne, 1994) or .90 (Schumacker & Lomax, 2004), the Goodness of Fit Index should be greater than .90 (Byrne, 1994) and Comparative Fit Index should be greater than .93 (Byrne, 1994) whereas the RMSEA value should be less than .08 (Browne & Cudeck, 1993) or .05 (Steiger, 1990). The value of the relative chi-square should be less than 2 or 3 (Kline, 2014; Ullman, 2001). The figure represents the final model achieved after adding covariance.

Table 4
Psychometric Properties and Alpha Reliabilities of Research Instrument (N=302)

Variables	N	k	M	SD	α	Range Potential	Range Actual	Skew	Kurt
ACSI	293	26	75.01	11.46	.86	26-104	50-104	.12	-.75
Adver	300	4	11.35	2.59	.63	4-16	4-16	-.19	-.36
Coach	299	4	12.29	2.68	.64	4-16	5-16	-.15	-1.16
Con	299	4	11.35	2.41	.54	4-16	4-16	-.25	-.29
Achiev	300	4	12.38	2.56	.66	4-16	6-16	-.30	-.90
Prep	299	4	11.26	2.36	.56	4-16	4-16	-.25	-.16
Peak	302	4	10.99	2.60	.62	4-16	4-16	-.12	-.32
Worry	300	2	5.33	1.51	.45	2-8	2-8	-.19	-.57

Note: ACSI= Athletic Coping Skills Inventory, Adver= Coping With Adversity, Coach= Coachability, Con= Concentration, Achiev= Confidence and Achievement Motivation, Prep=Goal Setting/Mental Preparation, Peak= Peaking Under Pressure, Worry= Freedom From Worry, K= number of items, M= mean, SD= Standard Deviation, α= Cronbach alpha coefficient, Skew= Skewness, Kurt= Kurtosis.

The alpha reliability of the instrument was in an acceptable range (Taber, 2017). Freedom from worry scale had a low-reliability value but it was due to a smaller number of items. Previous research has shown that a smaller number of items can affect the reliability of scale (Eisinga et al., 2013).

Discussion

The coping of sport players holds value as an important construct in sport psychology. Unfortunately, in Pakistan, a comprehensive scale to measure the coping skills of athletes was not available in the local language. The available translated scale related to coping is for the general population and general life events. Therefore, the current study aimed to translate ACSI into the national language of Pakistan for a better understanding of the sport community who can understand and comprehend the Urdu language. This scale was selected for translation and validation as it covered different domains of the sport profession with well-established reliabilities and can be self-administered.

ACSI was constructed and validated by Smith et al. (1995) on a diverse sample of men and women athletes belonging to different sport categories. As this scale has been translated and validated in a different language, it shows that this measuring tool is representative of the coping skills of athletes. The current study, aiming at the translation of this scale, was conducted so this scale can be applied to sport players who lack English language skills. The translation method by Gudmundsson (2009) was used. This study revealed acceptable reliability and compatibility of the translated versions. As the scale had a good record of established reliabilities and translations, factor structure was ensured through Confirmatory Factor Analysis, and model fit was obtained. Factor loadings and reliabilities of all subscales were found acceptable except the subscale of Worry. Reliability of the subscale Worry was found at .45 with Cronbach's alpha if-item-deleted showing that deleting item 7 can increase the reliability of this subscale to .58. However as initial CFA showed no factor loadings on this subscale so the analysis was conducted again. Two items of this subscale have been problematic in another study (Ozcan & Gunay, 2017) too. So following the instructions provided by Stevens (2012), as the sample was above 300

participants scale modification is considered acceptable. It was then decided to delete items one by one independently, and conduct analysis. The reliability of this subscale with the remaining 3 items (i.e.), 12, 19, and 23 dropped to .58. Then independent CFA was run without item 7 and retaining items. Confirmatory factor analysis on this subscale after dropping item 7, showed low factor loading on the remaining item 19 and high factor loading on item 12 of this subscale. By deleting item 12, one item showed factor loading of .01 which is unacceptable, and reliability was dropped to .36. By deleting item 7 and item 12, factor loading on 4 items of the overall scale was unacceptable. By deleting items 19 and 23 independently, no factor loading on this subscale was reported. Then items 7 and 19 were deleted as item-total correlation and the corrected item-total correlation showed negative values in both of these items. With this analysis, only 1 item showed high factor loading but it was decided to retain that item after qualitative examination as the statements were difficult to comprehend. According to Clark and Watson (2016) in the case of several items having largely standardized factor loadings e.g., more than 0.9, show that they are similar, contributing no new information but in the case of the provided analysis, the factor loading of only 1 item is high. In the validation study of the original scale, the subscale Worry had low factor loadings. The same subscale had two of its items removed in the Turkish version. The overall results match the results of previous studies.

Limitations

The sample size of the study was small i.e., only 302 participants and only women sport players, which doubts the generalizability, especially for men sport players. Due to the nature of the profession and as data was collected all over Pakistan, data was collected through Google Forms too; however, still, some of the sport players were unable to respond and submit the questionnaire when contacted especially those who lacked technology skills and from remote areas.

Future Implications

The translation and validation of this scale are beneficial for designing interventions in various fields related to sport on athletes. Moreover, it will help the inclusion of athletes in research who lack English language skills and those who become hesitant in responding to long questionnaires. Validation of this scale is also useful for exploring important aspects like personality and performance etc. concerning coping which in return can be beneficial for selectors and trainers. For improved factor structure, it can be applied to a more generalized sample comprising athletes from both genders and different provinces of Pakistan.

Conclusion

The translation and validation were conducted in two phases. Three hundred and two women sport players from all over Pakistan participated in this research. The achieved objective reflects that the athletic coping skills of those sport players who are proficient in Urdu can be assessed conveniently. Thus, it was concluded that the Athletic Coping Skills Inventory is a reliable scale for measuring the coping skills of sport players in Pakistan.

Declaration

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Pakistani Children's Reasoning for Fairness Judgements: A Qualitative Study

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Abstract

Background/Objectives. Fairness plays a pivotal role in children's moral development. While previous studies have provided valuable insights into how fairness concepts evolve, there is still a lack of detailed understanding regarding the thought processes that underlie children's fairness judgments. This study aims to delve into the qualitative aspects of children's reasoning behind fairness judgments, contributing to existing literature on the topic.

Method. Utilizing a sequential explanatory design, open-ended interviews were conducted with 150 Pakistani children aged 3 to 6 years. The participants were selected through purposive sampling from private schools in Islamabad, Pakistan. The study sought to explore the rationale behind their fairness decisions, particularly in scenarios involving offers of toffees, and how different relational dynamics influenced their reasoning. Both qualitative and quantitative analyses were conducted including thematic analysis, McNemar χ^2 Test, Fisher's Exact Test and Chi-Square test.

Results. Analysis revealed that Pakistani children predominantly utilized desired-based reasoning to justify their fairness judgments. However, morality-based, and norm-based reasoning were also observed. The study found that the dynamics of different relationships (sibling, friend, or stranger) significantly influenced the justifications provided by children.

Conclusion & Implications. The findings underscore the complexity of children's fairness reasoning and highlight the impact of social relationships on their decision-making processes. Understanding children's fairness judgments has implications for fostering moral development and promoting equitable behavior. This study contributes valuable insights to both theoretical understanding and practical interventions aimed at enhancing children's moral reasoning and social behavior.

Keywords. Fairness justifications, child development, moral development

Foundation University Islamabad

Introduction

From casual social activities such as playing games to more serious affairs involving finances, people hold a certain expectation of fairness from society, and it has long been regarded as a virtue that is desirable in all matters of people (Cappelen, 2019). However, it can sometimes be difficult to explain or even uphold in complex environments. How exactly is fairness understood or explained? Fairness, extensively explored in psychology, points to being just, impartial, and equitable. Psychological research approaches fairness through distributive justice, procedural justice, and social justice (Reynolds et al., 2015). Our study aims to explore how young children justify their fairness related decisions to gauge their understanding and motivations behind fairness.

Prosocial norms vary across cultures in human development. However, this culturally guided development is universal i.e., prosocial norms like fairness develop across the globe (House et al., 2020). While being a universal trait, perhaps culture plays a role in shaping our fair behaviour. We do see the cultural variations within the prosocial tendency of fairness, for example in matters such as differences in individualistic vs. collectivistic cultures on the children (Huppert et al., 2019) and the different trajectories of Advantageous inequity (AI) and Disadvantageous inequity (DI) aversion in developing children (Blake et al., 2015). But what is meant by these different inequity aversions and why do they matter? In simple terms, inequality aversion refers to the human inclination to have a negative attitude towards outcomes that are not equal (Yang et al., 2016). Children and some primates display aversion to both receiving less (DI aversion) and more (AI aversion), indicating a universal dislike of inequity (Brosnan & Waal, 2014). This behavior is observed in humans and apes but not in dogs, birds, or monkeys, which only exhibit DI aversion. Despite initial costs, this aversion to advantageous inequity likely fosters long-term social benefits and may be linked to the evolution of fairness concepts and cognitive development in higher primates (Ulber et al., 2017).

A lot of studies on fairness follow some form of resource allocation game or tasks following the Game Theory. Social Researchers have long been using tasks based on economic models like the Dictator and Ultimatum Games, to study children's understanding of fairness (Allgaier et al., 2020). The Fairness Acceptance Task is an adaptation of the Inequity Game by Blake and McAuliffe (2011) which is widely used in testing children's inequity aversions and provides direct evidence to support children's fairness understanding.

Fairness, a cornerstone of morality encompassing issues of others' rights, welfare, and justice, has garnered most significant attention in developmental psychology (Sheskin, 2017; Yang et al., 2019). Researchers have extensively investigated the development of fairness in children, exploring its various dimensions and cultural influences (Williams & Moore, 2016; Corbit et al., 2017). Studies highlight infants' early sensitivity to fairness in resource allocation tasks, progressing with age to expect equitable distributions (Rakoczy et al, 2016; Ziv & Sommerville, 2017). Social influences, such as infants' preference for equal distribution and children's rejection of advantageous allocations, further shape fairness development (Smith et al., 2013; McAuliffe et al., 2017). Additionally, research tracks the trajectory of fairness development, from prosocial behaviors in early childhood to nuanced understanding in later years (Köster et al., 2016; Blake, 2018). However, a gap exists in understanding the justifications behind children's fairness judgments, with limited emphasis on measuring these in contemporary research.

This exploratory phase of our mixed methods design aims to delve into the underlying reasons behind children's fairness judgments. By employing a qualitative approach, we seek to investigate this complex phenomenon in depth, complementing quantitative measures (Smith & Chudleigh, 2015). Our primary objective is to illuminate young children's understanding of fairness and the justifications they provide for their decisions, crucial for exploring the development and fostering of fairness behavior (Mei, 2021). We incorporate children's justifications alongside direct behavioral measures, employing open-ended questions across various relationship scenarios and nuanced allocations. This approach gives valuable insight into children's reasoning, guiding future studies on fairness comprehension and decision-making in children.

Method

Participants

Purposive sampling was used to select participants for the study from three private schools in Islamabad, Pakistan. Our inclusion criteria were children of both genders between the ages of 33 months to 83 months (approximately 2.75 to 7 years old). Children outside the specified age range were excluded from participation. Additionally, children with developmental disabilities or cognitive impairments that could potentially hinder their ability to comprehend and participate in the study were excluded.

Our total sample was 150 (M = 56.9, S.D = 10.6). We had 74 males and 76 females across the total sample. We divided our sample into three age groups with the younger group (N= 36) from 33 to 48 months (2.7 to 4 years) of age (M = 43.1, SD = 3.8), the middle group (N= 58) from 49 to 60 months (4 to 5 years) of age (54.8, SD = 3.7) and the old group (N= 56) from 61 to 83 months (5 to 7 years) of age (M = 68, SD = 5.4). About 72% of the children, in our sample, had mothers and 66% had fathers with a university education (at least 14 years). 74% of our sample came from families with monthly income above 80 thousand (average household income in urban areas reported as 53010 by Pakistan Bureau of Statistics, 2019).

Materials and Procedure

Data was collected from 150 students of three private schools in Islamabad. Parents were first sent out information sheets and consent forms through the schools. Only children with consenting parents were made part of the study. Before starting, assent was also taken from each child. Children that were hesitant and refused to take part were not interviewed. During data collection, each participant spent 10 to 20 minutes with the researcher in their school library or computer lab. Post-collection, parents received debrief sheets containing a thank-you note and relevant reading resources.

Fairness Acceptance Task. To look at children's fairness, we used Mei's version (2021) of the Inequity Game (Blake & McAuliffe, 2011), presented to participants with the help of Qualtrics. In this adaptation, the researcher distributes the resources to minimize the mental effort needed to be exerted by the children. The task includes three different allocations. In each trial, the child is presented with a hypothetical scenario where they imagine a recipient. There are three types of allocations:

1. In the fair trial, one candy is allocated to each: the participant child and the imagined recipient.
2. In the Advantageous Inequality (AI) trial, the participant child receives 2 candies while the imagined recipient only 1.
3. In the Disadvantageous Inequality (DI) trial, the participant child receives 1 candy while the imagined recipient 2.

After the researcher makes the allocation, the child is given the choice of either accepting or rejecting it. Rejection results in neither the participant nor the recipient getting any candy.

Each allocation trial was repeated three times, involving an imagined sibling, a friend, and a stranger. All possible scenarios were presented in a counterbalanced order. Children without siblings imagined a hypothetical one. They nominated a friend for that trial, while the stranger was described as an unknown same-gender child from another school.

At the end of each trial, the researcher asked one single, open-ended qualitative question to each child: "Could you tell me the reason you accepted (or) rejected the one (or) two toffee(s) when the [recipient (sibling/friend/stranger)] received one (or) two"? The question's details for acceptance vs. rejection and one vs. two toffees, along with the recipient (either sibling, friend, or stranger) were matched with the last trial the child completed during the fairness acceptance task. For example, if a child's last trial presented him with a choice of either accepting or rejecting two toffees while their brother gets one toffee which he accepted, the qualitative question posed was: "Could you tell me the reason you accepted the two toffees when your brother received one"?

For the exploratory analysis (reported in this article), children's responses were noted verbatim and later the data was analyzed for a deeper understanding of children's reasoning for their fairness judgements. The analysis was carried out following the Clarke & Braun (2017) approach to

qualitative content analysis.

We assessed inter-rater reliability using Cohen's Kappa (κ) to measure the agreement between the two independent coders. The resulting Kappa value was κ = 0.69, indicating moderate agreement according to McHugh (2012) guidelines. The 95% confidence interval for Cohen's Kappa was [-0.21 to 1.59], suggesting possible issues with reliability. The discrepancies were discussed between the raters, and a consensus was reached to finalize the coding, ensuring a more consistent interpretation of the data.

Results

All responses of 150 children were analyzed. The responses were first coded based on their general relevance and meaning. For example, a child saying, "because I am hungry" produced the code, "referral to hunger". The initial codes were revised and grouped into major categories such as "self-fulfillment" and "learned ideals". These categories were reviewed with existing themes used in previous studies such as McAuliffe and colleagues (2013). Final themes are presented in the following table.

Table 1

Desire-based Justifications for Fairness Judgement

THEME	DESCRIPTION	TRANSLATION
Desire Based Justification	Implicit or explicit reference to one's desire	Examples
Subthemes	*Description*	
Liking Toffees	Exclamation of one's preference for toffees	Because I like them (p030)
Liking More	Expressing the desire to have more	I like to have 2 things (p108)
Personal Desire	Exclaiming one's desire for toffees explicitly	I want toffee (p006)
Appreciation for Toffees	Showing admiration for the toffees, implicitly showing a desire	Toffee is good (p010)
Appeal to Hunger	Expressing the "need" to consume toffee as a response to hunger	I was hungry (p048)
Intention to share in future	Claiming future intentions to share while accepting advantage in the present	I will take 1 and give 1 to my sister (p141)
Not liking toffees	Claiming a dislike for toffees in general	I don't like them (p134)

Note: p=Participant.

Table 2

Norm-based Justifications for Fairness Judgement

THEME	DESCRIPTION	TRANSLATION
Norm Based Justification	Stating learned values and behaviours or conforming to perceived process or authority	Examples
Appeal to Health	Expressing concerns about health or giving a medical history	Because I have teeth cavities (p144)
Describing Habit	Sharing past relevant behaviours and/or routines	I eat 1 toffee (p127)
Referred to Game	Claiming to be following the "game" and only just agreeing	I was playing the game (p131)
Referred to Researcher	Claiming to just agree with the researcher	When you (researcher) give it to me (p073)
Mentioning what was given	Pointing to the allocation and just agreeing	Because I got 2 (p014)
Appeal to Friendship	Referring to their friendship with the recipient as justification	he is my friend (p109)
Appeal to Siblinghood	Referring to their siblinghood as justification	Because he is my older brother (p111)
Parental Teaching	Referring to direct teaching by parents	My dad tells me to never be jealous (p124)

Note: p=Participant.

Table 3

Morality-based Justifications for Fairness Judgement

THEME	DESCRIPTION	TRANSLATION
Morality Based Justification	Explicit referral to a moral belief as being their own, invoking relationship and/or talking about right and wrong	Examples
Appeal to Morals	Expressing some fairness ideals or referring to right vs. wrong	Because she (stranger) is also like our friend (p072)
Appeal to Generosity	Explicitly stating generosity towards the recipient	I want to give those that have less, more (p129)
Appeal to Being Good	Referring to goodness as being a characteristic of self	I do good things (p066)
Appeal to Equality	Expressing the need for equality for both parties	Both should have the same (p115)
Content with what they have	Showing contentment with the allocation	"aik bhi theek hai" (pk049)

Note: p=Participant.

Table 4
Unresponsive Answers

Unresponsive	Unable to provide any reason or relevant response to the question	Examples
Can't provide a reason	Explicitly stating ignorance or being unable to answer	I don't know (p114)
Irrelevant	Pointing to something not relevant or telling a random story	I don't hit (p040)

Note: p=Participant.

Figure 1
Acceptance Justifications Overall
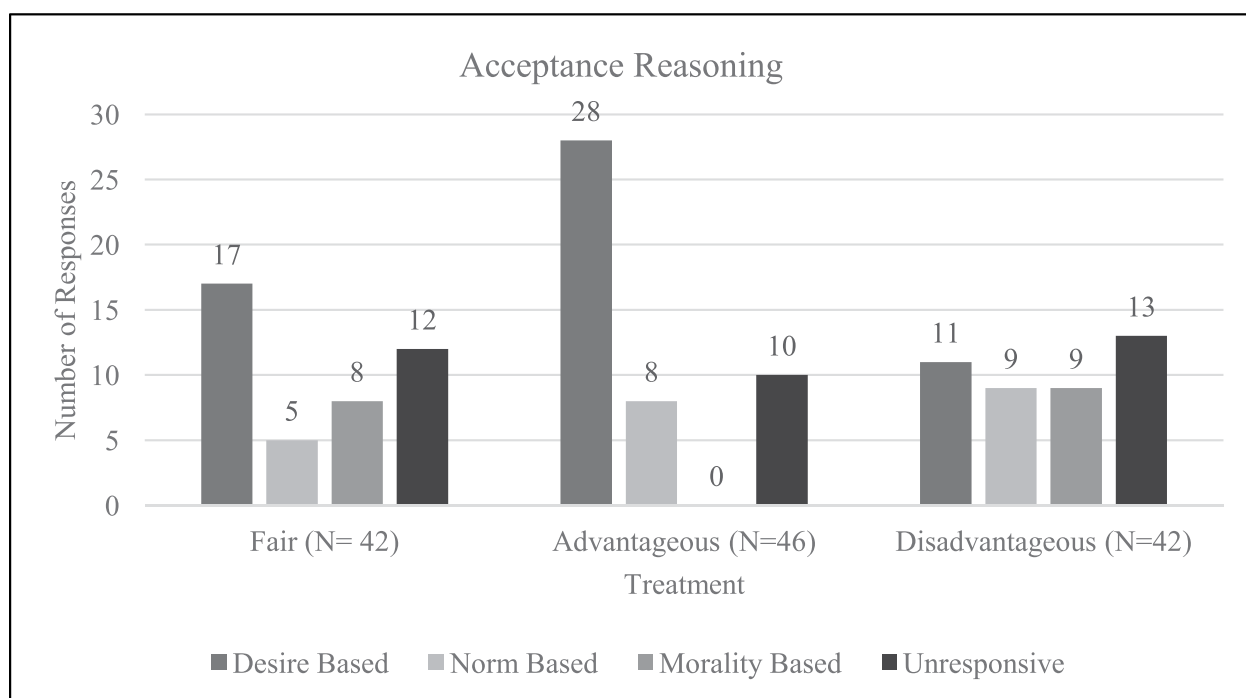
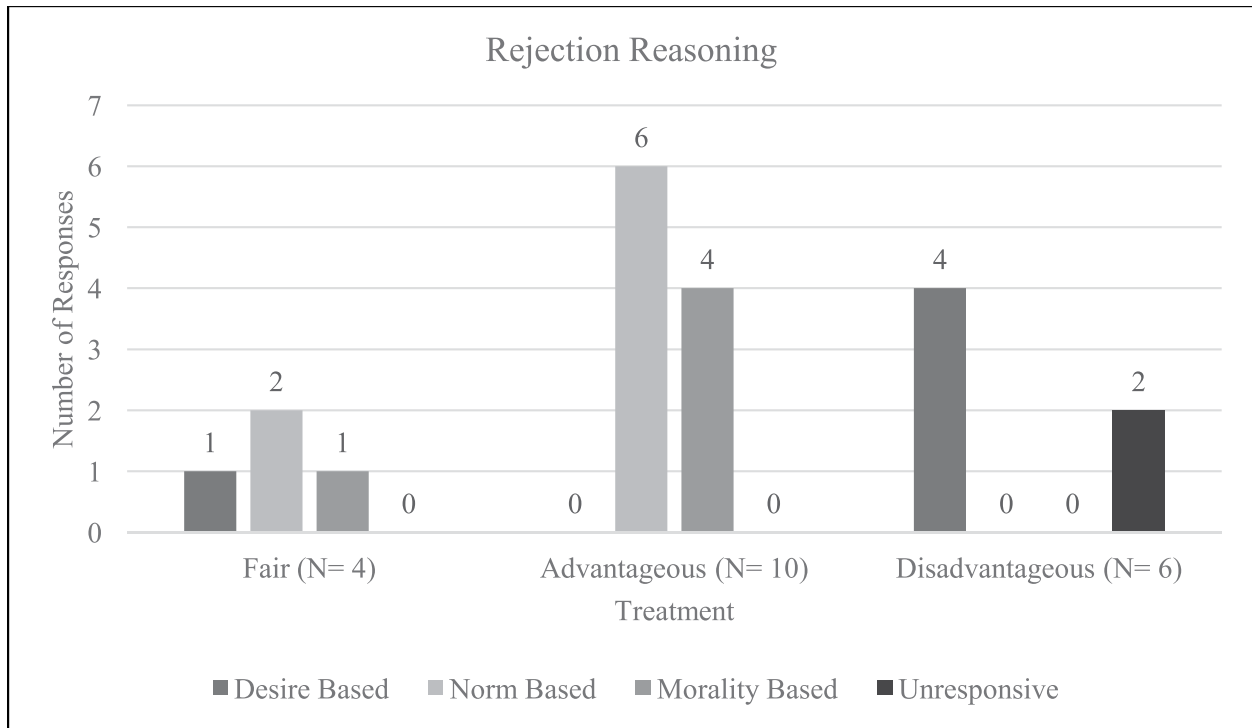**Figure 2**
Rejection Justifications Overall
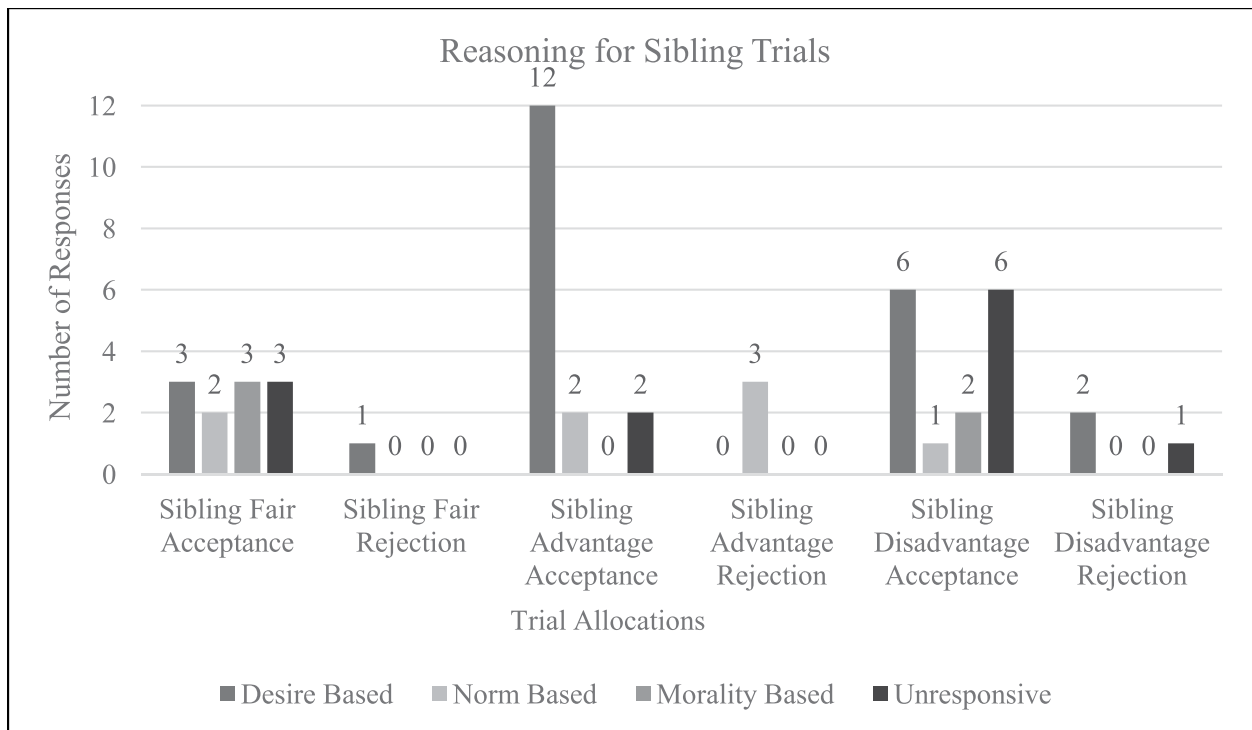

Figure 3
Justifications for Sibling Trials

Figure 4
Justifications for Friends Trials

Reasoning for Friend Trials

Figure 5
Justifications for Strangers Trials
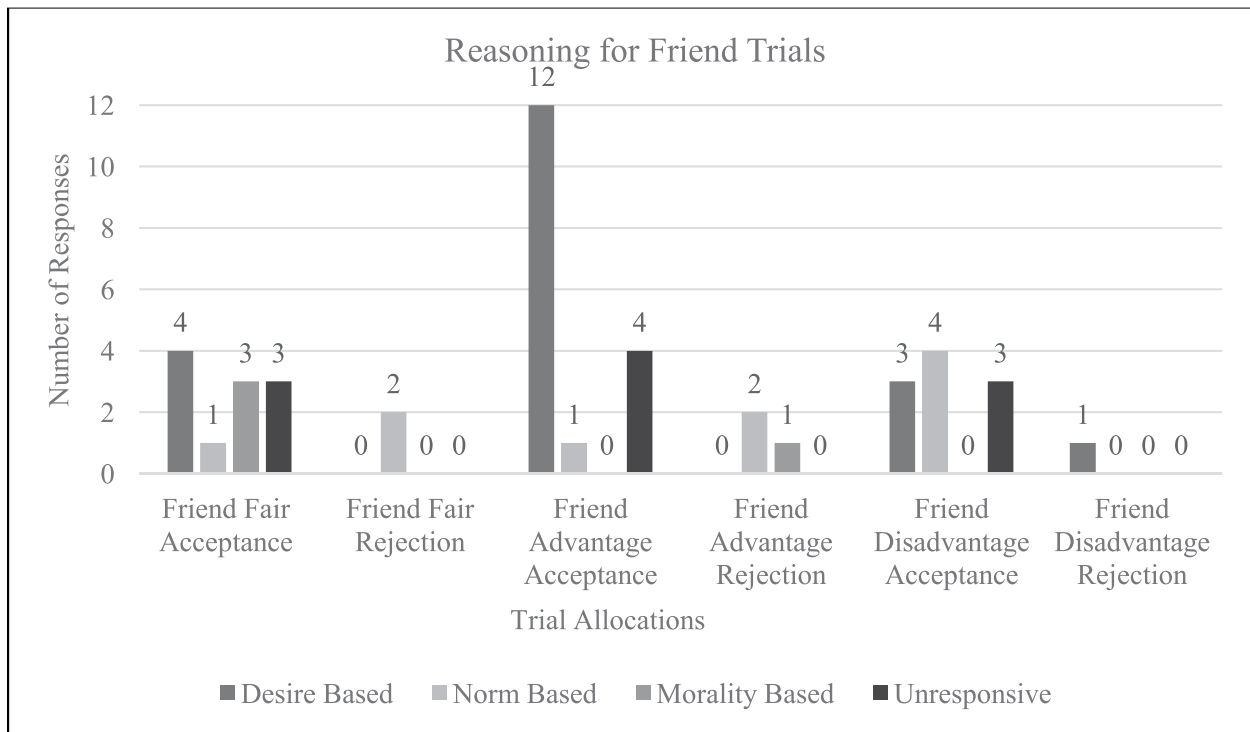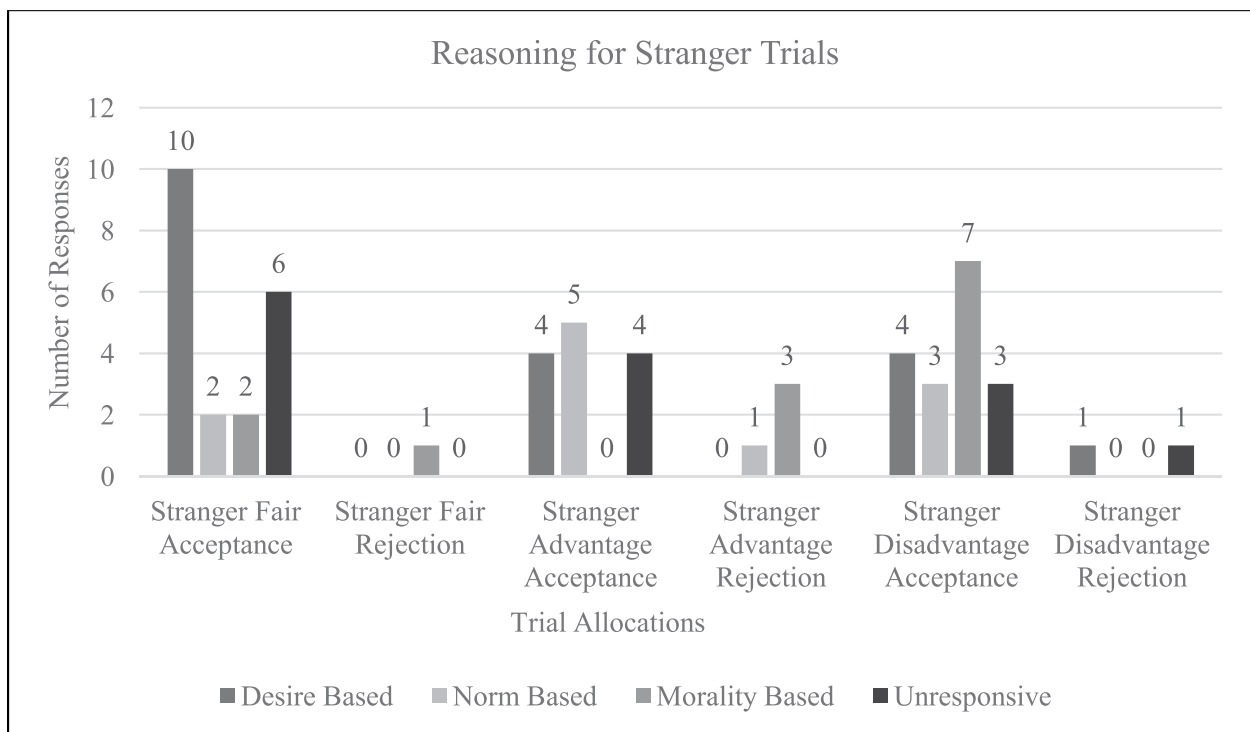

Reasoning for Stranger Trials

Each child was presented with counterbalanced scenarios containing a fair, advantageous and disadvantageous offer in comparison with an imagined sibling, friend, and a stranger. For the last scenario presented to them, we asked each participant why they had or had not accepted either the one or multiple toffees offered. Their verbatim answers were recorded and analyzed to form themes and subthemes (table 1 to 4).

Only 20 out of the 150 total responses from children were rejections of the last presented allocation. The remaining 130 children accepted the allocations. The above charts present the justifications provided for acceptance and rejection decisions. 36 of the respondents were Unresponsive, resulting in a 76% valid response rate which when contextualized with the age group of the participants is adequate for the research objectives.

Going by percentage, 38.6% of the total justifications provided were desire-based, while 14% were norm-based and 11.3% were morality-based. Looking at the observable data, we can see some patterns emerging. We see that children provided overwhelmingly desire-based justifications in accepting advantage over their sibling (12), and their friend (12) but not with a stranger (4). We also see more children providing a morality-based justification for accepting a disadvantage against a stranger (7) versus a sibling (2) and a friend (0).

When it comes to the general pattern of children's justifications when they accepted the offering, desired-based justifications are most frequent across all three allocations. Followed by norm-based, and then morality-based (figure 1). Desired-based justification refers to children's reasoning solely based on their self-serving desire. There were multiple variations of desired-based responses, with children sometimes directly and sometimes indirectly referring to their want as a reason for their decision to accept or reject the allocation. Out of the total justifications, most participants (38.6%) gave a desired-based justification. We also see that the advantageous acceptance produced the most desired-based responses (figure 1). And most of these desire-based answers were given in the sibling and friend trials compared to the stranger trials (figures 3 and 4).

For rejection of allocations in figure 2, 4 out of 6 responses in the disadvantageous trials were desire-based compared to 1 out of 4 and 0 out of 10 for other situations: fair and advantageous respectively. We see more norm-based answers in both fair and advantageous rejections than desire-based ones and children grounded their justifications in norms rather than desire or morality in both fair and advantageous trials. The second prominent theme Norm-Based Justification refers to children's reliance on their previous habits, routines, personal affiliation, and explicit social norms. 16.1% of the codable justifications for accepted allocations were norm-based in this study. Morality-based justifications encompass references to some form of morality, appealing to equality, and being content with the allocation.

Overall, 11.3% of children gave morality-based justifications for their behaviour. Explicit references to morals such as right vs. wrong are included within moral justifications and not as normative because of the difference in children's apparent internalization of the principles for example stating, "Because it is not good" versus "My father says we shouldn't be jealous". We observed that children gave most morality-based answers in the stranger trials, specifically for accepting the disadvantageous offer (figure 5).

Several exploratory analyses were conducted to examine the associations between allocation types (e.g., fair, advantageous, disadvantageous), relation categories (e.g., sibling, friend, stranger), demographic variables (e.g., gender), and justification categories (e.g., desire vs all other categories combined).

A series of McNemar χ^2 tests were conducted to explore the frequency of neighbouring pairs of justification categories. Results showed that for the overall sample, children employed a higher number of desire-based justifications (N=63) compared to norm-based justifications (N=29), p < .001. For the relation categories, children employed desire-based justifications more frequently (N=24) than norm-based justifications (N=8), in sibling condition, p = .008. The rest of the comparisons within relation categories did not show significant differences.

Next, justifications were compared across the three allocation conditions using McNemar χ^2 tests and, Fisher's Exact Tests due to the low

expected count in some cells. Results showed that, for fair allocation, desire-based justifications (N=18) were significantly more frequent than norm-based justifications (7), p=.043. Similarly, in the advantageous condition, desire-based justifications (28) were significantly higher than the norm-based justification (n=14), p=.045. However, in the disadvantageous condition, a similar frequency of desire and norm justifications were provided, p=.108. Additionally, within the advantageous condition, children provided a significantly higher frequency of norm-based justification (N=14) than morality-based justification (4), p=.031. A similar frequency of norm-based and morality-based justifications was observed in the fair and disadvantageous allocation conditions, p>.8.

To further assess the relationship between justification categories (e.g. desire-based vs. other categories combined) and the three relation conditions (sibling, friend, and stranger), Chi-square tests were conducted, separately in the allocation groups. The relationship between desire-based justifications and relation was significant in the advantageous condition, with a higher frequency of desire-justifications in sibling and friend conditions compared to the stranger condition, p=.032. Similarly, a significant relation was observed between morality-based justification and relation in the disadvantageous condition, p=.026, with a higher frequency of morality-based justifications observed in the stranger condition. The relation between gender and justification categories was not significant. Age categories were significantly related to desire-based justifications (p = .01), with older children (5-6 years old) employing a higher number of desire-based justifications compared to younger children (2-4 years old).

Discussion

Our study aimed to understand the reasoning children provide for their fairness judgments. In this section, we compare our results with previous literature to derive conclusions from our data.

One of our major results is that most responses of children were desire-based. This finding corroborates previous literature that finds young children, mostly aged 3 to 5 years, provide self-serving reasons such as "Because I want it" for their decisions in fairness tasks (Mei, 2021). The advantageous acceptance also invoked the most desired-based answers, which aligns with previous literature stating that young children struggle to suppress their desire to attain more resources (Blake & McAuliffe, 2011). Other research over the past two decades has observed that young children prioritize their self-interest when it comes to fairness in resource allocation tasks and judgments, a tendency that seems to be more regulated with growing age (Yu et al., 2016).

Our comparison of justifications across different relationships showed more desire-based responses with siblings. This difference between siblings and friends can be understood within the broader trend of children generally providing desire-based justifications. Previous literature has found that children increasingly reference cognitive terms and shared internal states with siblings more than with friends, particularly as they grow older (Leach et al., 2017).

Our results indicate that older children (5-6 years old) were more likely to use desire-based justifications than younger children (2-4 years old), a finding that may seem counterintuitive given that older children are generally expected to develop more sophisticated moral reasoning (as referenced above). However, this trend could be explained by the developmental shift where older children are becoming more aware of their desires and better able to articulate them. This increased articulation may lead them to express desire-based reasoning more frequently, even as they begin to understand and incorporate other principles such as fairness and morality into their decision-making. As children grow older, they develop a "veil of fairness," becoming increasingly concerned with appearing fair to others. This is evidenced by 6–11-year-olds' tendency to use seemingly fair procedures while still favoring themselves in outcomes (Shaw et al., 2014).

Interestingly, we see as many morality-based justifications as norm-based ones for accepting the disadvantageous allocation. On the other hand, when it comes to rejecting advantageous allocations, morality-based justifications appear more frequently than when accepting such allocations. This trend in the data is explained by previous literature where

researchers have reported that children's aversion to disadvantageous inequity develops earlier than advantageous aversion across various cultures (Williams & Moore, 2016).

Our observations regarding norm-based justifications are also notable when it comes to rejection. In both fair and advantageous scenarios, more children relied on norm-based justifications rather than those based on desire or morality when rejecting these allocations. This could provide preliminary evidence for the formation of fairness understanding developing as normative principles in young children, as seen in larger literature (Kajanus et al., 2019; Shaw et al., 2013). Our results align with developmental research positing a more adult-like or stable understanding of fairness from age six (Jaroslawska et al., 2020), with more rejection of advantageous allocations as well (Williams & Moore, 2016). Only about thirty percent of our participants were over the age of 5, and for the minority that did reject advantageous allocation, giving more normative justifications does seem to align with our previous understanding of fairness.

Our observations did deviate from the prevalent pattern observed in the literature regarding predominantly normative justifications provided by children from collectivistic cultures (Yau & Smetana, 2003). Moreover, results from a recent Chinese sample saw equal frequencies of desire-based and norm-based justifications in a similar study (Mei, 2021). Our results showed relatively lower instances of children giving norm-based justifications for their judgment decisions. We also did not observe our sample showing an obvious in-group bias, unlike previous studies (Corbit et al., 2022) that reported a strong peer preference in fairness decisions. This difference from previous studies on Eastern cultures such as China could be due to our sample belonging to a more Westernized community. In Western cultures, children prioritize autonomy and independence, fostering an equality norm (Smith et al., 2013).

Morality-based justifications reference some form of internal morality. According to Mei (2021), deviation from an external source of what is right (norm-based justification) suggests the development of more complex moral principles formed through social-experiential interaction. Definitively stating

whether the moral principles cited by young children are mere imitations of normative behavior or more consistent and stable internal principles is a complicated question and one beyond the scope of this study. However, these results align with research that puts age 5 to 7 as a critical transition period for children to have stable moral principles, including fairness (Tsutsu, 2010).

We especially see that children invoke morality in disadvantageous settings with strangers compared to siblings or friends, a statistically significant observation. This could be evidence for internalized fairness, as literature has established that children do understand fairness principles early, but their fairness knowledge does not always align with their behaviour, which is influenced by relative advantage and how rewards are acquired (Blake et al., 2014). Our observation regarding strangers is somewhat similar to Moore's (2009) study, where an out-group stranger with no established relationship was treated just as pro-socially as friends, and even more so than non-friends. This suggests that when acting pro-socially comes with little or no cost, young children are likely to do so even in situations where they have no prior acquaintance. According to Killen & Rizzo (2014), children can apply moral concepts to outgroup members, but this ability appears to be complex. The challenges involved in making moral judgments about outgroup members include understanding group dynamics, recognizing the intentions of those who differ from themselves, and having the capacity to challenge stereotypical expectations of those outside their own group.

It is important to note, however, that other studies have reported children's preferential treatment of friends or siblings over strangers (Over, 2018; Mei, 2021). Children might find it easier to empathize with their friends (Ongley & Malti, 2014), and there is an inability to share with strangers until the age of 8 (Fehr et al., 2008). This difference in results can be attributed to variation in study methodologies as well as cross-cultural differences. Previous literature has found children being more reserved when providing a reason in stranger trials, perhaps due to cultural norms and maintaining social image (Botto & Rochat, 2019). The fact that these children only employed more morality-based justifications in disadvantageous

trials could be another evidence of this complexity and the difficulty of balancing self-interest with moral principles, as discussed earlier.

One example of such a justification is a child stating, "Because she (stranger) is also like our friend" (p072). Even though most children in our study overwhelmingly accepted the allocations, those who did reject an advantageous offer compared to a stranger were able to invoke explicit morality. This again alludes to preschoolers' capacity to not only engage in fair behaviour but, according to Mei (2021), these young minds can be altruistic and much more nuanced in their decision-making processes.

When it comes to morals and norms, children seem to be at least able to distinguish between the two as separate events. Hypothetically, morality pertains to actions that are normatively binding, universally applicable, impersonal, and obligatory. Looking at all three emerging themes, we see a picture where even young children have a nuanced understanding of fairness at their levels and can provide a justification that differs among their peers and according to the social situation. For example, giving different justifications for accepting a disadvantage versus accepting an advantage over another person. Children tend to prioritize concepts such as welfare (harm), fairness, and rights in their decision-making processes, which are central to moral considerations (Martin et al., 2021).

Children's adoption of social norms is shaped by the customs prevalent in their local environment and their identification as members of specific social groups (Tomasello, 2016). While preschoolers typically grasp information limited to a single aspect of a situation, children aged five and older develop the ability to integrate data from multiple dimensions (Lucas et al., 2013). This developmental divergence is evident in the moral domain as well. Our study also points towards the general trend of younger children making decisions in their self-interest overwhelmingly, but there is enough nuance in their justifications to go beyond and exhibit fair behaviour. Fairness, as an inherent human trait, evolves in response to the social environment (Govrin 2014) and specific contextual factors (Hod-Shemer et al., 2018), that influence moral judgments.

Conclusion

In our analyses, children's justifications for their decisions revealed three prominent themes: desired-based, morality-based, and norm-based reasoning. These reasoning patterns were influenced by the relationship context of the hypothetical game. Desired-based justifications, reflecting self-serving desires, were most common among younger children, especially in sibling trials. Norm-based justifications indicated children's reliance on previous habits and social norms, with balanced frequency across relationships. Morality-based justifications demonstrated children's appeal to principles of equality and contentment. These principles were expressed especially in scenarios involving strangers and disadvantageous allocations. This suggests that even at a young age, children are not only guided by self-interest but also demonstrate an early understanding of fairness principles. Our study highlights the complexity of children's fairness understanding and the emergence of moral principles shaped by social interactions. This nuanced perception suggests potential implications for moral education and policy-making practices.

Limitations and Future Recommendations

Our sample was limited to an urban population and our sample was selected from upper middle-class, private school. A more diverse sample can offer more insight into the phenomenon under study. The scope of this study was also limited in its exploration and further probing of the research question. As our sampling was purposive and limited to a specific socioeconomic class, a more diverse sample from different backgrounds plus a larger sample will be beneficial for future studies. Also including more age groups in the study can help us understand more developmental underpinnings of children's reasoning as well.

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Conflict of interest

There is no conflict of interest in this research study.

Availability of Data

Datasets are not publicly available due to privacy and confidentiality agreements.

Ethical Approval

Approval was obtained from the National University of Sciences and Technology's (NUST) ethical committee (Ref: 0988/Ethic/01/S3H/091/DBS) before the start of data collection.

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Research Article

True Leaders Never Stop Learning: Relationship between Intellectual Humility, Decision Making Self-Esteem, Decision Making Styles and Occupational Wellbeing among Educational Leaders

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Abstract

Background. Present study was aimed to examine relationships between intellectual humility, decision making self-esteem, decision-making styles and occupational wellbeing among educational leaders. Furthermore, predicting role of intellectual humility and decision making self-esteem on decision making styles have been focused.

Method. A sample of 150 Head of department of universities and Principals of colleges (aged 25-60 years) were selected belonging to different universities and colleges of Attock, Hasanabdal, Wah Cantt, Taxila, Rawalpindi, and Islamabad. Comprehensive Intellectual Humility Scale (Krumrei-Mancuso & Rouse, 2016), Decision-Making Self-Esteem Scale (Mann et al., 1997), Melbourne Decision-Making Questionnaire (Mann et al., 1997) and Work-Wellbeing Scale (Parker & Hyett, 2011) were used to measure research variables.

Results. Results showed that intellectual humility has significant positive relationship with decision making self-esteem, work satisfaction and vigilance style. Intellectual humility and decision making self-esteem significantly predict vigilance among educational leaders. On hypervigilance, the mean of educational leaders with less income comparatively to other groups is greater than mean of these groups.

Keywords. *Intellectual humility; decision making self-esteem; decision-making styles; occupational wellbeing; educational leaders*

Foundation University Islamabad

Introduction

For many years, universities and colleges have been the driving force behind societal change through advanced education. Their purpose has always been to serve as self-contained institutions that benefit society by expanding knowledge and educating the next generation.

Universities and colleges operate under the supervision, leadership, and vision of their academic leaders. During the planning, implementation, and evaluation of everyday duties, educational leaders are always involved in making decisions (Ahmed & Al-Dhuwaihi, 2020). They take decisions on how the departments will be organized, who will be leading the workforce, who will evaluate the performance of the faculty, vacation timings, controlling the problematic behaviors of employees and job rotation schedule (Hitt et al., 2006).

Moreover, modern workplace sector is driving a demand for continuous skill and knowledge development and put a great strain on leaders to keep pace with time (Lopez, 2012). True leaders are lifelong learners and consider all experiences to be learning opportunities (Kouzes & Posner, 1995, as cited in Lopez, 2012). They have receptive minds that embrace innovative viewpoints as opposed to closed ones that reject them (Daft, 2014).

Intellectual humility can be characterised as a non-threatening recognition of one's own intellectual fallibility, as well as an openness to alternative perspectives that may differ from one's own viewpoints ((Krumrei-Mancuso & Rouse, 2016; Porter & Schumann, 2018). Leaders who reported greater regard for different points of view, which is a sign of intellectual humility, had followers who were more content with their leader's interpersonal leadership and justice attitude (Krumrei-Mancuso & Rowatt, 2021).

Therefore, leaders having intellectual humility can bring wonders in educational settings. These higher educational institutes can't run smoothly without humble and efficient educational leaders who took rational decisions for their institutions. But sometimes, searching for alternatives, investigating and locating them, and weighing the merits and drawbacks of their decisions becomes a complex process which may cause decisional conflict and stress (Narangerel & Semerci, 2020). The literature review enhanced the nature and concept of intellectual humility, however intellectual humility among educational leaders in Pakistan have not been studied yet. So, the present study aims to explore the relationship between intellectual humility and various decision-making styles (e.g., vigilance, hypervigilance, buck-passing, and procrastination), among educational leaders in different colleges and universities in Pakistan, as this relationship received little attention in Pakistani context.

Janis and Mann (1979) sophisticated the notion in their conflict-theory model of decision making process that decision making entitles a struggle that generates stress. Stress results from the decision maker's choice causing any personal, objective, subjective or material loss and this can cause decrease in one's self-esteem (Janis & Mann, 1977, as cited in Narangerel & Semerci, 2020). The inflated stress level bring outcome in elevated choice for abnormal decision making styles and poor decision results (Mann et al., 1997, as cited in Fiaz, 2021). In contrast, evidence also showed that self-assured individuals are more successful in making effective decisions and dealing with scenarios of making decisions (Mağden & Küçük, 1993, as cited in Coruh & Vural, 2019). Present study aims to investigate how decision-making self-esteem affects the decision-making styles of educational leaders in Pakistani context.

According to Janis and Mann's model, three predecessor conditions that determine the conflicts in decision making include awareness that it is a serious risk if nothing is done, quest and hope of discovering a better option and belief of having enough time in hand in order to evaluate, understand as well as assess the situation at hand and generate and choose the best possible alternative. Four patterns emerge as a result are procrastination, buck-passing, hypervigilance and vigilance (Mann et al., 1997, as cited in Fiaz, 2021).

Ideal pattern of decision making is vigilance decision making in which decision maker go in depth for the relevant information, pick information in an unbiased manner and evaluate carefully all the alternatives before taking a decision (Janis, 1982, as cited in Filipe et al., 2020). Vigilant decision makers believe in having an adequate time for the better alternatives and they do not avoid responsibility.

However, unexpected threat or time pressure conditions give rise to an anxious way of decision making i.e., hyper vigilant pattern of behavior. To release stress immediately, the person makes an abrupt choice (Ding et al., 2020).

While some individuals often leave decisions to others and show avoidant behavior in deciding, known as buck-passing. Procrastination is also another maladaptive coping strategy (Isaksson et al, 2014). It includes lowering priority by deferring decisions for later (Urieta et al, 2021).

However, evidence showed that intellectually humble people have an accurate view of themselves and their intellectual limitations, so their decision-making power is strong, they can make decisions using various innovative styles, and they are well-adjusted in their occupational settings (Davis et al., 2016).

A leader's occupational well-being can also be a key factor in determining organizational effectiveness. Occupational well-being is defined as feeling safe, healthy, and productive in the workplace (Parker & Hyett, 2011). Work satisfaction is considered as one of the important dimensions of occupational well-being, involving how individuals perceive their job fulfillment and whether work enhances their well-being, provides meaning in their lives, and improves their skills. Conversely, individuals may experience stress and pressure, finding it challenging to meet targets and "wind down" after work, which can impact their self-esteem (Parker & Hyett, 2011).

Also the decision making process can act as a huge contributor to the efficiency, productivity and satisfaction at a workplace. Different decision-making styles help worker to do a task in more productive ways even in stress provoking situation (Demerouti et al., 2001, as cited in Salvagioni, 2017). Such individuals will get positive feedback at the end of task accomplishment, increasing their work-efficiency and well-being, especially occupational well-being (Halbeslenben, 2010, as cited in Bayhan, 2020).

Objectives

1. To explore the relationship between intellectual humility and decision making self-esteem and decision making styles of educational leaders.
2. To explore the relationship between decision making self-esteem and decision making styles of educational leaders.
3. To investigate intellectual humility and decision making self-esteem as predictors of decision making styles among educational leaders.

Hypotheses

1. There will be a positive relationship between intellectual humility and vigilance decision making style of educational leaders.
2. Decision making self-esteem will be positively related with vigilance decision making style among educational leaders.
3. Intellectual humility and decision making self-esteem will significantly predict vigilance decision making style among educational leaders.

Method

Research Design

A descriptive-predictive research design was carried out in the present study. The study was quantitative in nature.

Sample

It is a cross-sectional study and sample consisted of 150 educational leaders. There were both males (*N*=89, 59.33%) and females (*N*=61, 40.66%) in the study. Participants with age range 31-40 years have more participation rates (38.0%) than other age groups. In this sample most of the participants (78.7%) have post-graduate level education. 57.3% participants were from joint family system which is greater than participation rate of participants with nuclear family system (42.7%). Mostly participants (82.0%) were married. Most number of participants were from government sector (48.7%) as compared to participants from private (42%) and semi-government (9.33%) sectors. Mostly participants (62.7%) have monthly income from 50K to 1Lac. 28.7% participants have job experience of 11-15 years and have high participation than other job experience groups. Data was collected from different educational institutions such as colleges and universities of Wah Cantt, Taxila, Attock, Rawalpindi, and Islamabad.

Inclusion Criteria

The sample consisted of both males and females educational leaders, ranging in age from 25-60 years.

Exclusion Criteria. The participants who gave incomplete responses were excluded from the study.

Sampling Technique

Participants were approached using purposive sampling technique.

Assessment Measures

Comprehensive Intellectual Humility Scale (CIHS). The Comprehensive Intellectual Humility Scale (CIHS; Krumrei at el., 2016) is 22-item self-report measure of intellectual humility. Items are rated on a 5-point Likert scale. Items 1, 2, 3, 4, 5, 12, 16, 17, 18, 21 and 22 are reversed scored. Scores can range between 22 and 110, with higher scores indicating more IH. The measure has shown adequate levels of validity and reliability. The scale's coefficient alpha was .88 (Krumrei at el., 2016).

Decision-Making Self-Esteem Scale. The DMQ-I is a scale that aims to assess individual's self-esteem as a decision maker. It consists of 6 items, rated on a 3-point Likert Scale. Items 2, 4 and 6 are reverse scored. Higher scores indicate greater confidence in one's ability to make decisions. The measure has shown adequate levels of validity and reliability. The scale's Cronbach alpha coefficient was found to be .74 (Mann et al., 1997, as cited in Filipe et al., 2020).

Melbourne Decision Making Questionnaire (MDMQ II). The Melbourne Decision Making Questionnaire (Mann et al., 1997) is a four-dimensional scale for assessing decision-making styles based on Janis and Mann's conflict theory of decision-making (1977). It consists of total 22 items, scored on three-point Likert scale with following options: not true for me=0, occasionally true=1, and true for me=2. The measure has shown adequate levels of validity and reliability. The DMQ-2 has a reliability of 0.80, 0.87, 0.81, 0.74 for its respective sub scales i.e. vigilance, buck-passing, procrastination and hypervigilance sub-scale (Mann et al., 1997, as cited in Filipe et al., 2020).

Work Wellbeing Questionnaire. It is 31-item self-administered questionnaire developed by Parker and Hyett (2011) that aims to assess workplace/occupational well-being through individuals' present and most relevant work situations. There are four sub-scales in this scale: (Work Satisfaction, Organizational Respect, Employer Care and Intrusion of work into Private Life). The 2 sub-scales that were selected to use in the present study to assess occupational wellbeing were work satisfaction and intrusion of work into private life. Items are scored on a 5-point Likert Scale, with options ranging from 0 to 5 (not at all, 1 to slightly true, 2 to moderately true, 3 to very true, and 5 to extremely true). This scale has a 0-155 scoring range, with a greater score indicating a higher level on that sub-scale. This scale has only one reversed score item (Item 30 of Intrusion of Work into Private Life sub-scale). The measure has shown adequate levels of validity and reliability. The scale's overall reliability was found to be coefficient alpha 0.83, for work satisfaction sub-scale its 0.85 and 0.78 for intrusion of work into private life subscale (Parker & Hyett, 2011).

Procedure

Permission was obtained from the authors of the scales, University administration, and official authorities of each institute as an essential need for data gathering in order to regulate the research's ethical standards. Data collected from a sample of total 150 participants. They were approached individually and given a questionnaire after confirming their willingness. The data was collected from different universities and colleges of Wah Cantt, Taxila, Hasan Abdal, Attock, and Islamabad. Before participation, consent form was given to be signed. They were informed that the information they submitted will be solely utilized for research purpose and kept anonymous and confidential. Additionally, participants were assured that they could withdraw at any moment and that their decision would be respected. All the participants were thanked for their participation. The data was then statistically analyzed using SPSS 23.0 to obtain the results.

Results

The results were analyzed by using SPSS (23.0), Mean and reliabilities of study variables were calculated in descriptive statistics. Correlation analysis was done to find out the relationship between study variables. Multiple hierarchical regression was done to find out the impact of predictors intellectual humility and decision making self-esteem on vigilance decision making style. Demographic variable (i.e. income) was explored using ANOVA.

Table 1

Mean, Mode, Median, Standard Deviation, Alpha Reliability Coefficient for Intellectual Humility, Decision Making Self-Esteem, Decision Making Styles, and Occupational Wellbeing (N=150).

Variables	K	α	Mean	S.D	Range		Kurtosis	Skewness
					Potential	Actual		
IH	22	.76	74.92	8.56	22-110	47	-.033	-.07
IOIAE	5	.85	17.15	4.17	5-25	17	-.63	-.30
OTROV	5	.57	18.35	2.82	5-25	15	-.04	-.24
RFOV	6	.77	23.25	3.56	6-30	21	1.57	-.70
LOIOC	6	.61	16.16	3.41	6-30	17	-.28	.16
DMSE	6	.58	08.25	2.16	0-12	9	-.66	-.33
DMS	22	.80	21.31	7.05	0-44	42	1.28	1.30
VG	6	.84	09.01	2.93	0-12	10	-.74	-.68
BP	6	.74	04.65	2.85	0-12	11	1.39	.82
PR	5	.82	03.41	2.93	0-10	9	1.48	1.03
HV	5	.75	04.23	2.68	0-10	9	1.71	.87
OWB	17	.73	37.36	8.14	0-68	43	-.022	-.16
WS	10	.91	26.15	7.37	0-40	36	.11	-.63
IOWIPL	7	.76	11.21	5.54	0-28	26	-.77	.35

Note. IH = Intellectual Humility, IOIAE = Independence of Intellect and Ego, OTROV = Openness to Revising One's Viewpoint, RFOV = Respect for Others Viewpoints, LOIOC = Lack of Intellectual Overconfidence, DMSE = Decision Making Self-esteem, DMS = Decision Making Styles, VG = Vigilance, BP = Buck-passing, PR = Procrastination, HV = Hyper-vigilance, OWB = Occupational Well-being, WS = Work Satisfaction, IOWIPL = Intrusion of Work into Private Life, K = Number of Items, α = Cronbach Alpha Reliability, S.D = Standard deviation.

Table 1 indicates the number of items, reliability, mean, mode, median, standard deviation, range (potential and actual range), skewness and kurtosis. The alpha coefficient of all the scale and subscales ranges from .57 to .91 indicating that they are valid for further analysis. It is clear from the table that all the scales and subscales have their skewness and kurtosis value within range of -2 and +2 and thus fulfilling the assumption of normal distribution.

Table 2

Pearson Correlation between Intellectual Humility, Decision Making Self-Esteem, Decision Making Styles and their subscales among Educational Leaders (N=150).

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
IH	1	-	-	-	-	-	-	-	-	-	-	-	-
IOIAE	.74**	1	-	-	-	-	-	-	-	-	-	-	-
OTROV	.45**	.02	1	-	-	-	-	-	-	-	-	-	-
RFOV	.65**	.25**	.40**	1	-	-	-	-	-	-	-	-	-
LOIOC	.52**	.30**	-.04	-.02	1	-	-	-	-	-	-	-	-
DMSE	.18*	.30**	.03	.22**	-.20*	1	-	-	-	-	-	-	-
DMS	.07	-.04	.10	.07	.07	-.12	1	-	-	-	-	-	-
VG	.38**	.38**	.10	.30**	.09	.45**	.14	1	-	-	-	-	-
BP	-.00	-.09	.01	-.08	.15	-.25**	.79**	-.15	1	-	-	-	-
PR	-.10	-.14	.09	-.07	-.07	-.31**	.78**	-.32**	.64**	1	-	-	-
HV	-.12	-.29**	.03	-.00	.00	-.22**	.77**	-.19*	.49**	.63**	1	-	-
OWB	-.08	-.09	-.03	.10	-.14	.08	-.04	-.02	-.02	-.04	-.01	1	-
WS	.18*	.10*	.01	.23**	-.07	.35**	-.07	.28**	-.11	-.18*	-.15	.74**	1
IOWIPL	-.32**	-.39**	-.07	-.17*	-.12	-.37**	.01	-.41**	.12	.17*	.18*	.48**	-.23**

Note. IH = Intellectual Humility, IOIAE = Independence of Intellect and Ego, OTROV = Openness to Revising One's Viewpoint, RFOV = Respect for Others Viewpoint, LOIOC = Lack of Intellectual Overconfidence, DMSE = Decision Making Self-Esteem, DMS = Decision Making Styles, VG = Vigilance, BP = Buck-passing, PR = Procrastination, HV = Hypervigilance, OWB = Occupational Well-being, WS = Work Satisfaction, IOWIPL = Intrusion of Work into Private Life.
$*p<.05$, $**p<.01$, $***p<.001$.

Table 2 demonstrates the relationship between intellectual humility (and its sub-scales independence of intellect and ego, openness to revising one's viewpoint, respect for others viewpoint, lack of intellectual overconfidence), decision making self-esteem, decision making styles (vigilance, buck-passing, procrastination, hypervigilance), occupational well-being and its subscales (work satisfaction, intrusion of work into private life). Results indicate that intellectual humility has significant positive relationship with openness to revising one's viewpoint, respect for others viewpoint, lack of intellectual overconfidence, decision making self-esteem, vigilance and work satisfaction. Intellectual humility is significantly negatively related with intrusion of work into private life. Decision making self-esteem is significantly positively related with intellectual humility, independence of intellect and ego, respect for others viewpoint, vigilance, work satisfaction, decision making styles and non-significant with occupational well-being. Decision making self-esteem is significantly negatively related with lack of intellectual overconfidence, buck passing, procrastination, hyper vigilance, intrusion of work into private life. Decision making styles is significantly positively related with buck passing, procrastination and hyper vigilance. Occupational well-being is significantly positively related with work satisfaction and intrusion of work into private life.

Table 3

Hierarchical Multiple Regression Analysis predicting Vigilance Decision-Making Style from Intellectual Humility and Decision Making Self-Esteem (N=150).

Predictors	R^2	ΔR^2	B	B	S.E	p	F	95% CI	
								LL	UL
Model 1	.18	.16					8.15***		
Constant				1.09	2.07	.60		-3.01	5.19
IOIAE			.32	.23	.06	.00		.11	.34
OTROV			.01	.01	.09	.90		-.16	.18
RFOV			.21	.17	.07	.01		.03	.31
LOIOC			-.01	-.01	.07	.88		-.15	.12
Model 2	.30	.28					24.71***		
Constant				-2.60	2.06	.21		-6.67	1.48
IOIAE			.19	.13	.06	.02		.02	.24
OTROV			.03	.03	.08	.73		-.13	.18
RFOV			.15	.13	.07	.06		-.00	.26
LOIOC			.10	.09	.07	.17		-.04	.22
DMSE			.39	.52	.11	.00		.32	.7

Note. IOIAE = Independence of Intellect and Ego, OTROV = Openness to Revising One's Viewpoint, RFOV = Respect for Others Viewpoints, LOIOC = Lack of Intellectual Overconfidence, DMSE = Decision Making Self-Esteem, CI = Confidence Interval, LL= Lower Limit, UL= Upper Limit, ΔR^2 = Change in R^2, β = Standardized Regression Coefficient.
*p <.05, **p<.01. ***p<.001

Table 3 shows impact of intellectual humility (independence of intellect and ego, openness to revising one's viewpoint, respect for others viewpoints, lack of intellectual overconfidence) and decision-making self-esteem on vigilance decision making style in educational leaders. Model 1 explains 18% variance in vigilance decision making style, and model 2 indicates 30% variance in vigilance decision making style.

Table 4

One-Way ANOVA to Check Monthly Income Differences at various levels in relation to Study Variables among Educational Leaders (N=150).

| | Categories of Income | | | | | | | | |
| | 50K to 1 lac | | 1lac to 2lac | | 2lac and above | | | | |
Variables	M	S.D	M	S.D	M	S.D	F	*p*	η2
IH	74.18	8.856	75.22	7.920	80.00	7.197	2.359	.098	-
IOIAE	16.74	4.372	17.51	3.882	19.18	3.027	1.936	.148	-
OTROV	18.27	2.799	18.51	2.744	18.45	3.588	.121	.886	-
RFOV	22.99	3.797	23.53	3.245	24.36	2.501	.931	.397	-
LOIOC	16.18	3.382	15.67	3.490	18.00	2898	2.105	.125	-
DMSE	8.21	2.318	9.11	1.886	8.73	1.348	2.732	.068	-
DMS	22.18	7.719	19.51	5.247	21.18	6.539	2.222	.112	-
VG	9.01	2.960	9.22	2.713	8.18	3.628	.554	.676	-
BP	4.74	3.058	4.20	2.361	5.64	2.873	1.268	.285	-
PR	3.74	3.072	2.60	2.320	3.91	3.534	2.537	0.83	-
HV	**4.68**	**2.787**	**3.49**	**2.212**	**3.45**	**2.979**	**3.612**	**0.29**	**0.22**
OWB	36.82	8.036	38.58	8.050	37.00	9.581	.719	.489	-
WS	25.65	7.704	27.11	6.386	26.15	7.378	.611	.544	-
IOWIPL	11.17	5.341	11.47	6.040	10.45	5.574	.151	.860	-

Note. IH = Intellectual Humility, IOIAE = Independence of Intellect and Ego, OTROV = Openness to Revising One's Viewpoints, RFOV = Respect for Others Viewpoint, LOIOC = Lack of Intellectual Overconfidence, DMSE = Decisional Self-Esteem, DMS = Decision Making Styles, VG = Vigilance, BP = Buck-passing, PR = Procrastination, HV = Hyper-vigilance, OWB = Occupational Well-being, WS = Work Satisfaction, IOWIPL = Intrusion of Work into Private Life, *p*<.05, **p*<.01, ***p*<.000.

Table 4 demonstrates that statistically significant differences exist across monthly income relations to intellectual humility, independence of intellect and ego, openness to revising one's viewpoint, respect for others viewpoint, lack of intellectual confidence, decision-making self-esteem, decision making styles, vigilance, buck-passing, procrastination, hypervigilance, occupational well-being, work satisfaction, intrusion of work into private life among educational leaders. F values are significant for the variables; therefore, post-hoc analyses are required for pairwise comparisons. As sample with respect to categories of monthly income suggested post-hoc method in this case is Games-Howell test (field 2000).

Table 5

Pairwise Comparison across Monthly Income with respect to Hypervigilance among Educational Leaders (N=150).

Variable	(i) Monthly Income	(j) Monthly Income	i-j	*B*	*P*	95%CL	
						LL	UL
HV	50k to 1lac	1lac to 2lac	1.19*	.43	.02	.15	2.23
		2lac and above	1.22	.94	.42	-1.29	3.74
	1lac to 2lac	50k to 1lac	-1.19*	.43	.02	-2.23	-.15
		2lac and above	.03	.95	.99	-5.50	2.56
	2lac and above	50k to 1lac	-1.22	.94	.42	-3.74	1.29
		1lac to 2lac	-.03	.95	.99	-2.56	2.50

Note. HV = Hyper Vigilance, I-J = Mean Difference, *B* = Standard Error, CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit, *p<.05, **p<.01, ***p<.000.

Table 5 demonstrates that statistically significant differences exist across monthly income, in relation with hypervigilance decision making style. On hypervigilance, the mean of people with 50k to 1lac is greater than people with 1lac to 2lac. The mean of people with 1lac to 2lac is greater than people with 2lac and above.

Discussion

The present study highlights the importance of intellectual humility, decision making self-esteem, decision making styles and occupational well-being among educational leaders. The main objectives of the present study include (a) to investigate the relationship between the study variables; intellectual humility, decision making self-esteem and decision making styles of educational leaders (b) to investigate the impact of intellectual humility and decision making self-esteem on decision making styles. Descriptive measurements were calculated for scales and subscales of the present study. The scales had skewness values between -2 to +2 which lies in normal range (Miles & Shevlin, 2001). Alpha reliabilities of all the scales were found to be satisfactory (Table 1).

The relationship between the study variables was determined by finding correlation estimates (Table 2). The findings indicate that intellectual humility is significantly positively related with vigilance decision making style (Table 2), as findings supported the hypothesis 1: *"There will be a positive relationship between intellectual humility*

and vigilance decision making style of educational leaders." These results are supported with the previous literature as it showed that people who have high intellectual humility will respect others view point, consider all alternatives and when warned they will surely revise their view points (Krumrei-Mancuso & Rouse, 2016). They are open minded, go for many different viewpoints, evaluate evidences and vigilant about their wrong beliefs which is motivated by detestation for being wrong (Leary, 2017).

The correlation estimates for decision making self-esteem indicated that decision making self-esteem is significantly positively related with vigilance decision making style (Table 2). The findings supported the hypothesis 2: *"Decision making self-esteem will be positively related with vigilance decision making style among educational leaders."* The results are consistent with previous research that showed that decision making self-esteem has a positive relationship with adaptive decision making style i.e. vigilance (Burnett, 1991; Mann et al., 1998 as cited in Narangerel & Semerci, 2020). And if a person score low on decisional self-

esteem than he will make worse decisions (Phillips & Ogeil, 2017).

The present study also hypothesized that**:** *"Intellectual humility and decision making self-esteem will significantly predict vigilance decision making style among educational leaders"*. The findings supported the hypothesis 3 (Table 3), as regression analysis indicates total 30% variance in vigilance decision making style by predictors intellectual humility and decision making self-esteem. The results are consistent with the previous literature as humble people have an accurate view of themselves and their limitations related to their skills and capabilities, so their decision-making power is strong, they can make decisions using various innovative styles, and they are well-adjusted in their occupational settings (Davis et al., 2016). People with high intellectual humility are open minded, go for many different viewpoints, evaluate evidences and vigilant about their wrong beliefs which is motivated by detestation for being wrong (Leary, 2017).

Additional Findings

Additional findings showed that intellectual humility has slightly negative relationship with occupational wellbeing among educational leaders (Table 2). This suggested that Principals of colleges and Head of Departments of universities can easily suffer from burnout and stress as a result of the increased burden and load of work that comes with the increased responsibility of positions designated to them, affecting their working capabilities such as decision-making and analysis of the situation at hand, which has a negative impact on their wellbeing (Sonnentag, 2015). However, findings also showed significant positive relationship between intellectual humility and one of the dimension of occupational wellbeing that is work satisfaction (Table 3). This implies that educational leaders who have high intellectual humility are more satisfied with their jobs. These results are also consistent with the previous literature which suggests that intellectual humility enhances the organization forgiveness (Al-Abedi, 2021) which is in turn correlating with work confidence, adjustment within workplace and with duties and most importantly increases the work satisfaction. (Zacher & Schmitt, 2016).

The outcomes of the present research further showed that decision making self-esteem is significantly negatively related with buck-passing, hyper vigilance, and procrastination style among educational leaders (Table 2). This is consistent with the previous literature which shows that if a person score low on decisional self-esteem than he will make worse decisions (Phillips & Ogeil, 2017). So, decision making self-esteem has negative relationship with the maladaptive decision making styles which are hypervigilance, procrastination and buck-passing style (Burnett, 1991; Mann et al., 1998 as cited in Narangerel & Semerci, 2020).

Results showed that intellectual humility is significantly positively related with decision making self-esteem (Table 2). Intellectual humility significantly negatively related with intrusion of work into private life (Table 2). Results showed that educational leaders with low monthly income than others i.e. between 50k to 1lac show more hypervigilance style and took quick decisions to get out of the dilemma then leaders with income 1 to 2lac and above (Table 4,5). Evidence also showed that financial stress can highly impact decision-making styles. Educational leaders with lower incomes may experience higher stress levels, leading them to make quicker decisions to alleviate immediate pressures. This is in contrast to their higher-income counterparts, who can afford to engage in more thorough and less pressured decision-making processes (Bavolar, 2023).

Limitations

Only quantitative method was used in research and the data was collected using questionnaire technique. This research lacks qualitative data that gives in-depth information. Only self-report measures were used and these measures are found to be related with social desirability responding (Fisher, 1993).

Suggestions

Future researches could be done to explore the factors behind the negative relationship between occupational wellbeing and intellectual humility. Many important factors such as burnout, work-related stress etc., which have potential to affect leader's occupational wellbeing should also be

investigated in this regard.

Comparative studies should be done on leaders from different educational level institutions i.e. at school, college and university level to see the differences in their level of intellectual humility and to explore different decision making styles used by them. Future investigations could also explore the cultural differences among different decision making styles used by different educational leaders and how they are influenced by their level of intellectual humility.

Implications

The present study shed light on the decisional patterns of educational leaders of Pakistan, so these findings can be helpful to organize training programs for such leaders to bring awareness about the decision making styles used by them and to enhance their decision-making skills for their better functioning, so that it will be beneficial for educational institutions which they are leading.

Also, the present research investigated the study variables across a large age range of about 25-60 years among educational leaders, this will help in better understanding about level of intellectual humility and decision making patterns of educational leaders belonging to different age groups. Present study also highlighted that how less income can affect educational leaders decision making power in a negative way. Because this area is largely untapped, this study will act as a gateway for future research.

Conclusion

The present study has empirically investigated the impact of intellectual humility and decision making self-esteem in relation with decision making styles and occupational well-being among educational leaders. The current study concluded that the intellectual humility and decision making self-esteem are positively related with adaptive decisional making style such as vigilance and negatively related with maladaptive decision making styles such as hyper-vigilance, procrastination, and buck-passing. Present study results also showed that intellectual humility and decision making self-esteem are significantly predicting vigilance decision making style. Additional investigations will be required to understand the reasons behind slightly negative relationship of intellectual humility with occupational well-being among educational leaders.

Declaration

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Taqwa, Spiritual Shame, and Divine Forgiveness in Islam

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Abstract

Background. The present study aimed to investigate the influence of taqwa on divine forgiveness moderated by spiritual shame in Pakistani adult Muslims.

Method. A convenient sample of 329 women and 206 men ($N = 535$) Pakistani adult Muslims (age range 19-75 years; $M = 30.68$ years, $SD = 11.92$ years) from Sargodha, Lahore, and Rawalpindi was recruited. We collected data using Urdu-translated versions of the Taqwa Scale (Nazam et al., 2022), the Divine Forgiveness Scale (Fincham & May, 2022), the offense-related shame subscale that was taken from the Offense-related Shame and Guilt Scale (Wright & Gudjonsson, 2007) in a cross-sectional survey design.

Results. Data were analyzed with SPSS and moderation analysis by PROCESS macro (Model 1) for SPSS. Findings revealed significant main and interaction effects of taqwa and spiritual shame on divine forgiveness. Analysis of the conditional effects revealed that spiritual shame strengthened the positive association between taqwa and divine forgiveness.

Conclusion. By revealing how spiritual shame can augment the relationship between taqwa and seeking divine absolution, the research provides valuable insights into one of the mechanisms of forgiveness in Islamic theology, emphasizing the role of self-reflection, repentance, and emotional states in establishing a relation with the divine.

Keywords. *taqwa, repentance, spiritual shame, divine forgiveness*

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Introduction

Muslim religious experiences include the intricate interplay of *taqwa* (تقویٰ) or piety or Allah-consciousness, divine forgiveness (مغفرت الٰہی), and spiritual shame (توبہ) or repentance. Muslims, like other believers (like Jews but not Christians, see Fincham & May 2023a), seek divine forgiveness with taqwa using spiritual shame or repentance. Requesting divine forgiveness is the cornerstone of religious thought in Islam and transcends religious affiliations and cultural boundaries. Spiritual shame thus is a profound endeavor that surpasses egotistical shame and builds a relationship with Allah, becoming Allah-conscious. Taqwa urges Muslims to cultivate an elevated awareness of Allah, to navigate personal and societal pitfalls, and to gain righteousness with assurance. Muslims believe spiritual shame strengthens the relationship between taqwa and divine forgiveness, however, this relationship is not psychometrically assessed in Pakistani Muslims. This study investigates the role of taqwa on divine forgiveness and asks the question of how spiritual shame adds to the strength of the bond between taqwa and divine forgiveness in these Muslims.

Taqwa

Taqwa is derived from the Arabic root *t-q-y* (تقیّ), which means `to protect or preserve oneself' (Khatami & Tawa, 2015) or the Arabic root waqā (وقاٰ) meaning staying away from all acts that are forbidden (Ohlander, 2005), or fearing commands of Allah (Kamil et al., 2010), or being aware of the duties towards Him (Rahman & Shah, 2015). Taqwa is a central concept in Islamic theology and ethics, often translated as *piety*, *godliness*, or *consciousness of God*. It refers to a state of mind and heart in which a believer is constantly aware of Allah and seeks to live a righteous and virtuous life in accordance with Islamic principles. Taqwa is a vital provision in the worldly journey of a Muslim. Allah says in the Quran "And take provisions, but indeed, the best provision is taqwa. So, fear Me, O you of understanding" (Al-Quran, 2:197). That is why taqwa is pivotal to a spiritual relationship with God (Triyuwono, 2016).

Taqwa embodies awareness and mindfulness of Allah, His omnipresence, and His divine essence. Believers trust His benevolence and understand Allah steers them away from transgressions that might invoke His displeasure or retribution (Qutob, 1986). This state is characterized by an emotional cognizance of God's nearness, influencing divine retribution and approval (Hawa, 2004). Wahab (2017) suggests that taqwa serves as a deterrent against actions that contravene God's edicts; and adds fear of Allah stops followers from doing sinful deeds (Hamid, 2003). It acts as a shield for the heart, safeguarding believers from estrangement from Allah, and amassing deeds that draw believers near Him (Topbas, 2009). Expanding on this, Khwajah (2012) adds, that taqwa is a reverential fear of God, invoking deeds like respecting parents and loyalty to a spouse, and compassion, benevolence, forgiveness, justice, and kindness towards others, and ascetic practices like humility, self-discipline, and patience.

Divine Forgiveness

Divine forgiveness in Islam refers to seeking pardon from Allah absolving sins and wrongdoings, a central concept that exists in many other religious traditions. Divine forgiveness is sought because Allah is there to forgive, His attributes like mercy, compassion, and the willingness to forgive are there for those who genuinely repent and seek forgiveness. Muslims strongly believe in these divine attributes and expect Allah to be Compassionate, Unforgiving, and Most Merciful. The Quran says, "O My servants who have transgressed [by sinning] against themselves, do not despair of the mercy of Allah. Indeed, Allah forgives all sins. Indeed, it is He who is the Forgiving, the Merciful" (Al-Quran, 39:53). Islam considers seeking divine forgiveness to be a fundamental purgative process that leads to removal of sins (Ayoub, 1997).

Fincham (2020) asserts God possesses the authority to absolve sins, and when divine pardon is bestowed it influences the individual in the temporal realm and beyond. Divine forgiveness functions as a catalyst for moral and spiritual growth (Exline & Rose, 2013) and when not given, retards spiritual growth and psychological well-being (Granqvist & Hagekull, 2001). God's forgiveness is flawless, it erases misdeeds and offers a chance for genuine transformation of the forgiven individual, contrasted with mundane forgiveness that does not transform the seeker but changes the forgiver (Fincham &

May, 2023a). Additionally, those who are divinely forgiven, are characterized by total eradication of negative sentiments towards the offender, a feat that is difficult to achieve when ordinary forgiveness is sought from others often observed with lingering resentments (Wade & Worthington, 2003). Seeking forgiveness from the divine restores the relationship with God, as forgiveness or tawbah is inherently reconciliatory (Fincham & May, 2023b).

Tahir (2018) suggests divine forgiveness is a fundamental aspect of Islam with ingrained tenets that include, creed (عقیده), jurisprudence (فقہ), and as a devotional practice (عبادت). The pursuit of divine forgiveness is not only a formal act but a spiritual journey of self or ego purification (تزکیہ) that takes place within the heart. This is echoed in the Qur'an: "And turn to Allah in spiritual shame, all of you, O believers, that you might succeed" (Al-Qur'an, 24:31) where success implies purification, Qur'an adds, "Indeed, Allah loves those who are constantly repentant and loves those who purify themselves" (Al-Qur'an, 2:222). Allah urges Muslims [paraphrased] to implore for forgiveness, repent, so that their prayers are heard, and mercy is assured (Al-Qur'an, 11:61). These verses point to the fact, seeking divine forgiveness is not just ritualistic but a deep facet of Muslim life, which reflects strength of faith.

Spiritual Shame

Shame is a complex emotional response that arises when an individual violates a moral or social standard, resulting in a sense of worthlessness, and negative sense of self (Tangney & Dearing, 2002). Unlike guilt, which is caused by a specific immoral action and reparative behavior, shame involves a global negative assessment of the self (Lewis, 1971). When individuals experience shame, they often feel exposed and worry about how others perceive them. This emotional state causes a desire to hide or disappear, frequently accompanied with feelings of powerlessness and a diminished sense of self-worth (Tangney et al., 1996). Shame can be particularly damaging because it does not only relate to the offense, but it extends to the individual's entire sense of self, often resulting in a pervasive feeling of inadequacy (Tangney et al., 2007).

Shame that results from committing sins is termed as "spiritual shame," with complex and profound emotions, where transgressions, against the Divine, divine law or religious standards, are reflected upon with deep sorrow and penitence. This form of shame is deeply embedded in many religious ideologies, distinguished from secular shame by an intrinsic connection to the divine or the sacred (Pargament, 1997). Spiritual shame encompasses a profound sense of unworthiness and moral failure (Tangney, 2000), and wretched standing in a spiritual or cosmic order.

Spiritual shame can be broken down into specific behaviors and reflections which typically include spiritual remorse, spiritual introspection, and divine forgiveness (Exline & Rose, 2013). When transgressing behaviors and thoughts arise they contribute to feelings of alienation from the divine, spiritual unworthiness, and despair (Granqvist & Hagekull, 2001). Communities that promote compassion, forgiveness, and pathways to redemption bolster divine forgiveness, facilitate coping, healing and reintegration. Conversely, communities that emphasize punishment and ostracism exacerbate feelings of shame, isolation and spiritual disengagement (Randall & Bishop, 2013).

Taqwa Divine Forgiveness and Spiritual Shame

Taqwa is Allah's infinite compassion and willingness to forgive when individuals sincerely repent and seek His forgiveness (Bonab et al., 2013). Taqwa is characterized by a heightened awareness of moral and ethical responsibilities towards God and fellow human beings. It encompasses a deep sense of piety, mindfulness, and devotion to Allah's commandments. Whenever Muslims with a high degree of taqwa or *mutaqqis* (متّقی) if transgress usually suffer immediate spiritual shame seek divine forgiveness and rectify their shortcomings to rejuvenate and strengthen their bond (taqwa) with Allah. Spiritual shame reinforces commitment to Allah, and within the context of taqwa acts as a significant motivator for seeking divine forgiveness. It strengthens the positive association between taqwa and seeking forgiveness by intensifying one's commitment to God-consciousness, moral rectitude, and continual self-improvement. This association reflects the deep intertwining of spiritual shame

and the practice of taqwa in Islam, emphasizing the pursuit of closeness to God through acknowledgment of one's limitations and seeking His forgiveness.

Spiritual shame and divine forgiveness are deeply intertwined concepts in many religious traditions, particularly Abrahamic faiths, Judaism, Christianity, and Islam. According to Islamic teachings, forgiveness and acceptance of the repentant sinner come from the belief of the believer in the all-forgiving Allah al-Rahman. A Muslim understands that they are forgiven by Allah through several spiritual indications and feelings. First, tawbah, or sincere repentance is followed by true remorse, which may lead to feelings of comfort in the heart of the believer that comes with the realization that God has accepted repentance. The Qur'an emphasizes that Allah forgives much to those who turn to Him, repentant and desirous of not sinning again (Al-Quran, 39:53). Also, repentance may be expressed by changes in believers' behavior and spiritual satisfaction, which would suggest that their repentance has been accepted. Of course, other external signs like life circumstances changing for the better may help the believer to be even more convinced of forgiveness however, the main guarantee lies in the faith in Allah and His promise of mercy to those who repent.

Christians believe that Jesus has taken care of all the sins of Christians, so they do not need to repent, but accept Jesus as their Savior. In some branches of Christianity (e.g., Catholicism), absolution from wrongdoing (sin) follows only after auricular confession, as forgiveness can be given only "through the priests" (Brom, 2004). Others may instead emphasize the example of Jesus, who forgave his enemies on the cross without the enemies having to repent or even ask for forgiveness. However, as Auerbach (2005, p. 479) notes, "While the Christian tradition depicts God as a model of absolute mercy and forgiveness, Judaism uses the same verses to teach its believers the limits of forgiveness (Fincham & May, 2023b).

Spiritual shame arises from the awareness and acknowledgment of having transgressed divine laws or moral standards. Divine forgiveness, on the other hand, is the merciful response of God felt by the repentant sinner. God absolves an individual from their sins and restores the relationship that was damaged by the transgression (Exline & Rose, 2013). Divine forgiveness is often contingent on sincere spiritual shame, which is an acknowledgment of the wrongdoing, a genuine feeling of remorse (spiritual shame), and a commitment to change behavior.

The relationship between spiritual shame and divine forgiveness can be viewed as a redemptive cycle. Spiritual shame recognizes moral failings and the need for divine grace. It is a painful yet necessary step towards self-improvement and spiritual growth. It prompts introspection and an earnest seeking of divine forgiveness, which is seen as the only remedy for the spiritual ailment caused by sin (Granqvist & Hagekull, 2001). Divine forgiveness, in response to spiritual shame and spiritual shame, is transformative. It not only absolves the individual from the guilt and burden of their sins but also restores their relationship with the divine. It allows for spiritual renewal and provides the individual with a clean slate to start afresh in their spiritual journey (Randall & Bishop, 2013).

In many religions including Islam, the capacity of the Divine to forgive is limitless, symbolizing infinite mercy and compassion. This concept serves as a source of hope and comfort for believers, assuring them that no matter the depth of their transgressions, the opportunity for redemption and forgiveness is always available, so long as they return with a contrite heart (Pargament, 1997) so that they can heal, restore and overcome shortcomings, and realign themselves with their spiritual ideals.

When entrenched believers sin, they experience an intense sense of spiritual shame questioning the veracity of their relationship with Allah. They wonder about their hypocrisy and acknowledge straying away from the path of taqwa. While spiritual shame is distressing for them, it plays a crucial role in tawbah or spiritual shame. It acts as a catalyst for spiritual reflection and self-assessment, prompting believers to seek forgiveness and make amends. Spiritual shame for taqwa is not to paralyze the believer but to inspire them for ensuing transformations and return to piety and righteousness (Hawa, 2004). In essence, taqwa represents a state of continual mindfulness and obedience to Allah, facilitating spiritual growth and closer alignment with the Divine. In this sense, taqwa constitutes an important precursor of divine forgiveness. Believers

learn that tawbah and taqwa are the mechanisms that bring them back to the righteous path after going astray. Taqwa is the binding force between a believer and God and whenever this bond weakens, tawbah is the way to fortify it. The Qur'an refers to taqwa as a prerequisite for the forgiveness of sins or tawbah. Qur'an says, "Whoever fears Allah, He will expunge his evil deeds and will richly reward him (Al-Qur'an, 65:5)." The above discussion led us to propose spiritual shame would work as a positive predictor of divine forgiveness which in turn should predict taqwa; spiritual shame should also predict taqwa directly. The relationships among these theistic constructs were envisioned in a moderation model (See Figure 1 below) and were tested in modern Pakistani Muslims that would replicate many historical experiences of Muslim believers where taqwa or God-consciousness resulted from spiritual shame.

Figure 1.

Conceptual Model of the Study
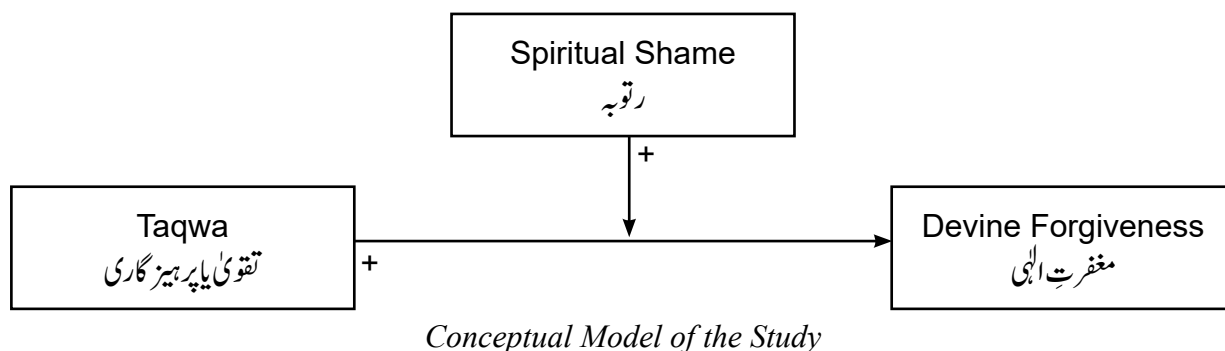
Note. Taqwa (independent variable) influences Divine Forgiveness (dependent variable) whereas Spiritual Shame (Moderating variable) strengthens the bond between the other two variables.

Method

Sample

We conveniently sampled Pakistani Muslims, 329 women and 206 men ($N = 535$) recruited from Sargodha, Rawalpindi, and Lahore who were 18 years or older (age range 19-75; $M = 30.68$, $SD = 11.92$), and had at least matriculated from school. Activity-wise the sample was divided into 200 university students, 100 businesspersons, 118 housewives, and 117 variously employed adults in public and private domains like banks, telecommunication, and schools and universities. The sample according to family structure had 290 participants from nuclear families and 210 from joint families. Three hundred and thirty-three participants were married and 202 were single.

Assessment measures

The study used standardized instruments developed in English, however, for participant ease of use, researchers translated (forward-backward) them in Urdu (Brislin, 1970). Therefore, the Divine Forgiveness Scale (Fincham & May, 2022), the Offence-related Shame subscale taken from the Offense-related Shame and Guilt Scale (Wright & Gudjonsson, 2007), and the Taqwa Scale (Nazam et al., 2022) were translated in Urdu, by three qualified translators proficient in Urdu and English. The steps included: forward translations in Urdu, review by a panel of experts that voted for the best translation, backward translation in English by a senior faculty member of the English, University of Sargodha, feedback on forward-backward translations by a panel of experts comprising of authors and two senior faculty members from psychology, University of Sargodha. All involved in these forward and backward translations collaborated to sift inconsistencies out and include cultural meaningfulness in the final translations of the instruments. To test the clarity and meaningfulness of the translated scales 30 participants completed these scales and expressed no difficulties in comprehension or cultural understanding giving us the confidence that they could be used for Urdu-speaking populations.

Taqwa Scale (TS). Developed by Nazam et al. (2022) TS is a self-report Urdu measure that consists of 12 items. Participants responded to each item on a 6-point Likert-type scale ranging from 1 *Strongly Disagree* to 5 *Strongly Agree*. No items were reverse-scored. The internal consistency of the TS was high (Cronbach α = .94) in a sample of 229 Indian Muslim university students (Nazam et al., 2022). An item on the scale reads as:

''میرا یقین ہے کہ اللہ سے محبت کرنے والے شخص کو کوئی خوف یا تشویش نہیں ہوتی۔''

Divine Forgiveness Scale (DFS). Developed by Fincham and May (2022), DFS is a 5-item self-report measure. Participants responded to each item on a 6-point Likert-type scale that ranged from 1 *Never* to 6 *Always*. No items were reverse-scored. The internal consistency of DFS ranged from good to excellent (Cronbach alphas = .88 to .96) across two samples of college students (Fincham & May, 2021). An item on the scale reads as:

''مجھے یقین ہے کہ جب بھی میں اللہ تعالیٰ سے معافی مانگتا ہوں تو وہ مجھے معاف کر دیتے ہیں ۔''

Offense-related Shame Subscale (OSS). Repentance or spiritual shame was measured by a 5-item offense-related shame subscale (translated in Urdu) taken from the Offense-related Shame and Guilt Scale (Wright & Gudjonsson, 2007). Participants responded to each item on a 7-point Likert-type scale ranging from 1 *Almost Always Not True of Me* to 5 *Almost Always True of Me*. No items were reverse-scored. The internal consistency of the OSS subscale is adequate (Cronbach α = .81)

reported by the authors (Wright & Gudjonsson, 2007). An item on the scale reads as:

''جو کچھ میں نے کیا اس کے بعد میں خود کو دوسروں کی نسبت کم وقعت سمجھتا ہوں۔''

Procedure

Participants were approached in person at their workplaces or residences and were told about the nature and objectives of the study. After signing the consent forms, they completed a demographic sheet followed by the three instruments (see above). Participants were assured their responses would remain confidential and anonymous and used only for study purposes. They were also told that their participation was entirely voluntary and that they could withdraw from the study at any stage of their session or later. On average, participants spent about 20 minutes to complete the instruments. No compensation was offered for their participation. We approached and distributed 600 packets of instruments plus the demographic sheet, however, only 535 packets were usable, and 65 were excluded either because we did not receive them back, or they were partially completed or had response-set issues. At the end of each session, researchers expressed gratitude and thanks to the participants for their valuable contributions to the study.

Descriptive statistics, internal consistency, and regression were analyzed through SPSS (v. 26, IBM Corp.) to discern the relationships among the constructs. And PROCESS macro (Model 1) for SPSS (Hayes, 2018) was employed to analyze the moderating role of repentance between taqwa and divine forgiveness.

Results

Table 1 presents the descriptive statistics and Cronbach's alpha coefficients of reliability for various measures used in the current study. All measures were internally consistent ($\alpha > .70$). The Cronbach's alpha coefficients of the scales closely correspond to the reliability coefficients reported by their original authors. Skewness and kurtosis values fell within normal ranges indicating that our variables were normally distributed, therefore, the data were appropriate for the parametric tests. The actual range corresponds well to the potential range suggesting no issues of restricted range.

Table 1

Descriptive Statistics and Internal Consistencies of the Scales

Scale	M	SD	Range Actual	Potential	Sk[a]	Ku[b]	A	TS	OSS	DFS
TS	64.46	7.05	26-72	12-72	-1.39	3.27	.92	-	.19[1]	.47[2]
OSS	21.17	8.14	5-35	5-35	-.20	-.91	.79		-	.31[2]
DFS	26.74	3.96	10-30	5-30	-1.74	3.06	.84			-

Note. TS = Taqwa Scale, OSS = Offense-related Shame Subscale, DFS = Divine Forgiveness Scale, [a]Standard error of skewness = .14, [b]Standard error of kurtosis = .28
[1]$p < .01$, [2]$p < .001$

Table 2 presents the summary of the findings of the moderation analysis. Taqwa and spiritual shame both have significant positive effects on seeking divine forgiveness. The interaction effect of taqwa and spiritual shame is also positive and significant suggesting that spiritual shame moderated between taqwa and seeking divine forgiveness. The conditional effects of taqwa on seeking divine forgiveness at various levels of spiritual shame suggest that spiritual shame strengthened the positive association between taqwa and seeking divine forgiveness.

Table 2

Main and Interaction Effects of Taqwa and Spiritual Shame on Divine Forgiveness

Variable	B	SE	95% CI LL	UL	R^2
Taqwa	.27[2]	.03	.21	.30	.29[2]
Spiritual Shame	.15[1]	.02	.07	.18	
Taqwa X Spiritual Shame	.11[1]	.001	.06	.14	
Conditional Effects					
Low Spiritual Shame (M-1SD)	.20[2]	.03	.13	.26	
Medium Spiritual Shame (M)	.27[2]	.02	.21	.30	
High Spiritual Shame (M+1SD)	.34[2]	.03	.26	.8	

Note. M = Mean, SD = Standard Deviation
[1]$p < .01$, [2]$p < .001$

Discussion

This study aimed to explore the influence of taqwa on divine forgiveness in the Islamic tradition. The findings supported our first hypothesis, demonstrating a positive and statistically significant relationship between taqwa and divine forgiveness. Individuals who reported higher taqwa were more likely to experience a greater sense of divine forgiveness, indicating that their spiritual consciousness positively predicted their perception of Allah's mercy and willingness to forgive. Taqwa holds a central and revered place within Islam. It is often described as the foundation of one's relationship with God and is closely linked to one's consciousness of God's presence in daily life (Esposito, 2011). Believers are encouraged to cultivate taqwa as a means to navigate life's challenges while remaining steadfast in their faith. Islamic teachings emphasize the importance of taqwa in fostering divine forgiveness. Believers are taught that those who are conscious of God and strive to uphold His commandments are more likely to be recipients of His mercy and forgiveness. Taqwa is seen as the guiding force that encourages spiritual shame, seeking forgiveness, and striving to live in accordance with God's will. Individuals who possess a strong sense of taqwa are more inclined to act in ways that align with their religious values and principles. This includes acknowledging their faults, seeking forgiveness for their sins, and sincerely repenting for their wrongdoings. Taqwa serves as a motivator for individuals to maintain a close connection with God, recognizing His attributes of forgiveness and compassion (McCullough et al., 2003).

Our second hypothesis that posited, spiritual shame, stemming from a genuine acknowledgment of wrongdoing and moral transgressions, would serve as a positive predictor of divine forgiveness and our findings offer support for this hypothesis. When individuals experience spiritual shame, arising from a recognition of transgressions against these principles, the innate desire for reconciliation with a higher power comes into play. Seeking divine forgiveness becomes a natural response, aligned with religious teachings that emphasize the importance of atonement for sins. This process is not only seen as a means of rectifying one's actions but also as a cathartic journey involving self-reflection and a commitment to improvement. The hope for redemption and a renewed spiritual connection further motivates individuals to engage in the ritual of seeking divine forgiveness, fostering a sense of communal harmony and adherence to shared values within religious communities.

Seeking divine forgiveness is often linked to the restoration of spiritual connection. Hall and Fincham (2008) highlight an act like this can lead to increased feelings of reconciliation and restored spiritual harmony, enabling individuals to reestablish a sense of connection with their faith or higher power. This restoration of connection can alleviate the burden of spiritual shame, fostering a sense of self-forgiveness and reducing negative emotions (Tangney et al., 2007). Exline and Baumeister (2000) emphasize that seeking forgiveness, whether divine or interpersonal, can significantly reduce psychological distress associated with feelings of shame. In a similar vein, Kang and Shaver (2004) showed that the resolution of spiritual shame through seeking divine forgiveness would foster healthier emotional regulation and coping strategies.

Implications

This knowledge not only offers potential avenues for enhancing spiritual development in community programs but also emphasizes the need for support systems that can guide Muslims in their spiritual journey reuniting with Allah after repenting their wrongdoings. Moreover, these findings could pave the way for future research in other religious and educational contexts when establishing curriculum for Muslim children and adults, emphasizing the delicate balance between God-consciousness, spiritual shame, and the quest for divine forgiveness.

Limitations and Suggestions

Like other empirical research, this study also has its limitations. First, self-reported data from participants is always subject to biases, such as the social desirability bias, which could have exaggerated the magnitude of the relationships among the constructs of the study, however, authors believe that the direction of relationship among these constructs is accurately reflects

what has been suggested in literature or spiritual anecdotes in Islam. Second, the interpretations of taqwa, spiritual shame, and divine forgiveness across various cultural or regional backgrounds in the three cities where data was collected may not completely align and variability in responses of the participants could have affected the strength of magnitudes measured in our data. Third, *taqwa* and *divine forgiveness* are abstract and religious constructs and present challenges when quantified with quantitative measures. Fourth, despite a sizable sample, the average age of the sample was around 30 years with fewer older participants, which certainly does not represent adult Muslim population; not having enough older Muslims would certainly affect results, making the study less generalizable. Finally, a correlational analysis does not discern causality among the constructs, where taqwa works to influence divine forgiveness, or it could be that believer's realization of divine forgiveness could influence their taqwa, and spiritual shame could influence taqwa or divine forgiveness separately or together.

To understand these constructs better and the way younger and older Muslim view them future research may consider mixed methods where quantitative and qualitative data could be collected in the same individuals, this could enrich our understanding of how Muslims comprehend these constructs and when they complete psychometric measures how do their in-depth understanding of these constructs aligns with quantitative data. Moreover, a longitudinal design may be employed to better understand changes or development of these constructs in Muslims; a study like this could narrow down causal factors amongst these variables. Multiple samples or a large diverse sample that covers a wide stretch of Muslim community should be used this would make generalizations better. Finally, future studies should investigate the role of divine forgiveness in improving the mental health in Muslims. The need for studying the role of divine forgiveness in mental health is evident globally in all religious traditions. Divine forgiveness in all traditions provide a structured framework for self-reflection, allowing individuals to acknowledge their shortcomings, mistakes and sins, where road to divine forgiveness could be taken to correct them.

This process is psychologically beneficial, seeking forgiveness from God and making amends, serves a form of emotional cleansing (Koenig, 2012).

Conclusion

This research highlights the pivotal role of taqwa in shaping perception of Allah as merciful and willing to forgive. As a fundamental concept in Islam, taqwa encourages believers to lead their lives characterized by piety, self-awareness, and devotion to Allah and His commandments, ultimately facilitating a deeper connection with the Divine and a greater experience of divine forgiveness, which includes a sense of knowing that they have been forgiven. These findings contribute to a deeper understanding of the spiritual dimensions of Islam and the dynamics of faith within the Pakistani Muslim community. Spiritual shame serves as a catalyst for individuals to engage in acts of spiritual shame and reconciliation with the Divine, ultimately reinforcing their belief in the possibility of divine forgiveness. These findings contribute to a deeper understanding of the complex interplay between human psychology and religious faith, shedding light on the dynamics of shame and forgiveness within a spiritual context.

This research underscores the interplay between religious beliefs, emotions, and spiritual growth. It also emphasizes the transformative power of spiritual shame when experienced as heightening taqwa, promoting a deeper connection with God and a genuine pursuit of divine forgiveness. These findings contribute to a richer understanding of the spiritual dimensions of human psychology and the dynamics of faith in Islam noted in Pakistani Muslims in our study.

Declarations:

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Research Article

Repressive/Defensive Coping, Identity Confusion and Social Stress in Non-Suicidal Self-injury among Psychiatric Patients

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Abstract

Background. The research explores the correlation among repressive defensive coping, social stress and identity confusion, within the demographic of non-suicidal self-injury patients among patients facing mental health issues.

Method. A between-group cross-sectional research method was used to gather information from a cohort of 70 participants (27 Males and 43 Females) with age range between 20 and 35 years (M = 27.3, S.D = 4.9). Data collection took place in both government and private hospitals. The assessment of variables was conducted using the Ottawa Self-injury Inventory (OSI) (Nixon & Cloutier, 2005), Rational/Emotional Defensiveness Scale (R/ED) (Swan, Carmelli, Dame, Rosenman & Spielberger, 1991), Brief Fear of Negative Evaluation (BFNE-II) (Carleton, Collimore & Asmundon, 2007), and Erickson Psychosocial Stage Inventory (EPSI) (Rosenthal, Gurney & Moore, 1981).

Results. The findings indicated a negative correlation between repressive defensive coping and identity with non-suicidal self-injury (NSSI), whereas social stress exhibited a positive association with NSSI. Predictive analysis further identified anti-emotionality, identity synthesis, confusion, and social stress as significant predictors of non-suicidal self-injury.

Conclusion. This study sheds light on key factors and characteristics associated with non-suicidal self-injury, including coping mechanisms and stress levels in individuals. This insight will aid professionals in comprehending the phenomenon and offering more effective assistance to those affected.

Keywords. Repressive-defensive coping, Social Stress, Non-Suicidal self-injury, and Identity confusion.

Foundation University Islamabad

Introduction

The current study was conducted to study the relationship between repressive-defensive coping, identity confusion and social stress in non-suicidal self-injury patients. Non-suicidal self-injury (NSSI) involves the direct, deliberate and deliberate harm or destruction of one's own body tissue in the absence of suicidal intent (Lurigio, Nesi, & Meyers, 2023). Commonly, individual who often indulge in self-injurious behaviors can cause intentional harm to one's body. These behaviors are found to be addictive in nature, can continue repeatedly, based on impulse, and often found to be intentional by the individual. Such acts are non-lethal as the individual is not intended to take his life, just a spontaneous act to find instant relief. Individuals who indulge in self-injurious behaviors often reported these behaviors as their way of coping while dealing with environmental stressors, their own painful memories, to get attention of others, and to discuss traumatic feelings. Self-harming behaviors are not initiated with the intention to kill oneself but considered a coping mechanism of individuals to deal with stressful situations. Usually after harming oneself, individuals feel temporary relief due to which this behavior become repetitive like a self-destructive cycle (Fossati & Somma, 2018).

Non-Suicidal Self-Injury (NSSI)

The term non-suicidal self-injurious behavior is used commonly and to be seen today a lot more frequently. A person deliberately causing destruction on his/her body without having any purpose of ending one's life. Common NSSI includes non-fatal scratches, blisters, scars, or skull beating (Klonsky, Victor., & Saffer, 2014). During self-injury, individuals often report that cutting, for example, doesn't cause pain but provides satisfaction and release from pressure, stress, and nervousness. Those experiencing bodily pain during self-harm may give preference it over the psychological and emotional pain, because such actions or behavior transforms emotional distress into a pain that's is more controllable in the form of bodily sensations (Boehm, Peterson, Kivimaki & Kubzansky, 2011). Individuals who often indulge in self-injurious behaviors often do so to normalize their sentiments, regulate or lessened negative emotions, endure negative emotional states, manage painful cognitive thoughts, punish themselves, or induce specific feelings (Anderson, Sellbom, Sansone, & Douglas, 2016).

NSSI behaviors encompass a range of actions, including cutting body parts, burning, using destructive objects on the skin, inserting harmful objects, biting, employing chemicals, attempting needle injections, breaking bones, head banging, punching, and impeding wound healing. Cutting is identified as the most commonly reported method for NSSI (Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007). The onset of self-harm typically occurs during adolescence, a critical developmental phase marked by numerous recurrent, less severe self-injury methods. Adolescence introduces significant physical, psychological, and social changes, and unresolved trauma and negative experiences during this period may lead to severe complications in adulthood. The persistence of NSSI during adulthood demands increased attention, impacting various aspects of life, such as work and relationships. The lack of previous literature addressing this issue and its interconnectedness with other phenomena raises significant questions.

Repressive-Defensive Coping

Coping, defined by Lazarus and Folkman (Berjot & Gillet, 2011), involves a person's abilities and efforts to manage the personal and others stressors by assessing available resources. Repressors, as per Eriksen, possess a high threshold for recognizing anxiety-provoking stimuli. Weinberger characterizes repression as a self-deceptive strategy used by individuals to avoid negative emotions. Those employing repressive-defensive coping aim to shield themselves from negative emotions like anxiety, hostility, depression, and fear. Individuals utilizing this coping mechanism may struggle to recall negative memories, experience difficulty remembering negative information, and report fewer negative events. While repression helps with current threats, prolonged avoidance of anxiety-provoking stimuli may lead to mental health issues (Steenkamp, De Jong, & Baumgartner, 2010).

Identity Confusion

Personal identity, according to Erikson

(1950, 1968), involves an individual's awareness of self-knowledge, synthesis, and consistency over time and situations. Identity synthesis, strongly related to an individual's functioning, contrasts with identity confusion, characterized by a lack of a clear sense of self, purpose, and direction. Erikson posits that healthy ego identity development begins in puberty, a critical phase that, if problematic, can lead to identity confusion and disrupt functioning. Acute identity confusion may contribute to psychiatric issues, such as borderline personality disorder. Those with identity confusion may struggle with family understanding, leading to lower functioning levels (Mitchell, et al., 2021).

Social Stress

Social stress can be elucidated as the uneasiness or apprehension an individual experience during interactions or within various social settings. This discomfort extends to children and adolescents, prompting them to avoid situations where stress may arise. The phenomenon encompasses feelings of threat tied to social relationships, attachments, and self-image. It permeates diverse contexts, including interpersonal dynamics, marital complexities, familial discord, and the fear of judgment or exclusion. It's noteworthy that factors contributing to social stress can exert a profound impact on individuals, especially those grappling with societal stigmatization based on socioeconomic status, race/ethnicity, gender, or sexuality, consequently shaping their mental well-being (Dohrenwend, 2010).

Method

A between-group cross-sectional research design was employed to investigate repressive-defensive coping, identity confusion, and social stress among non-suicidal self-injury patients.

Objectives

The study aimed to explore the relationship of repressive defensive coping, identity confusion and social stress among non-suicidal self-injury patient in psychiatric population. The objectives of the study that are to be studied are as follows:

1. To study the relationship between defensive coping, identity confusion and social stress in non-suicidal self-injury among psychiatric

patients.
2. To study identity confusion and defensive repressive coping as predictors of NSSI in patients.

Hypotheses

The hypotheses of the study are as follows:
1. There is a negative relationship between repressive-defensive coping, identity confusion and non-suicidal self-injury.
2. There is a positive relationship between social stress and non-suicidal self-injury.
3. Identity confusion and social stress will predict non-suicidal self-injury behaviors among psychiatric population.

Participants

A total of 70 participants constituted the sample for the present study, with ages ranging from 20 to 35 years ($M = 27.3$, $S.D = 4.9$). Purposive sampling was employed to select participants from various government and private hospitals in Lahore. The sample consisted of males and females with comorbid psychiatric conditions, excluding those with psychosis and drug addiction-related disorders. Exclusion criteria aimed to ensure that self-injurious behaviors were not primarily related to reasons other than psychiatric conditions such as drug addiction, hallucinations etc.

Assessment Measures

The current study employed various assessment measures and screening tools to evaluate the participants. These instruments included:

Ottawa Self-Injury Inventory (OSI) (Nixon & Cloutier, 2005). The OSI was utilized to investigate self-injurious behaviors among the sample population. It comprises both quantitative and qualitative queries, examining the types and functions of non-suicidal self-injury (NSSI). Participants had the flexibility to mark more than one answer, considering the potential use of multiple methods. The OSI demonstrated excellent internal consistency scores of 0.67 to 0.87 in adolescent and adult samples and is appropriate for clinical populations of youngsters and grownups.

Rational/Emotional Defensiveness Scale (R/ED) (Swan, Carmelli, Dame, Rosenman, & Spielberger, 1991). The R/ED scale was employed

to measure the extent to which repressive defensive coping as found within the study population. It consists of 12 items with two sub-scales: Anti-emotionality and Rationality. Using a 4-point Likert-type scale (ranging from 1 - 4), participants provided responses. The Cronbach's alpha values were high, at 0.77 and 0.78 for both men and women.

Erickson Psychosocial Stage Inventory (Rosenthal, Gurney & Moore, 1981). The EPSI, focusing on Erikson's developmental theory, assessed identity confusion in the current study. The Identity Scale, consisting of 12 items, measures both identity synthesis and identity confusion. Scores range from 1 (Strongly Disagree) to 5 (Strongly Agree), and the identity subscale's Cronbach's alpha values were 0.82 for Identity Synthesis, 0.73 for Identity Confusion, and 0.69 overall.

Brief Fear of Negative Evaluation Scale – Revised (BFNE-II) (Carleton, McCreary, Norton & Asmundson, 2006; Carleton, Collimore, & Asmundson, 2007). The BFNE-II, a self-report scale, was employed to investigate the phenomena of fear among the sample of negative evaluations from others, indicative of stress in social situations and apprehension. Comprising 12 items which were assessed on a 5-point Likert scale (0 to 4), BFNE-II exhibited excellent internal consistency ($\alpha= 0.97$). A clinically significant social anxiety cutoff score was set at 25 or greater.

Procedure

To conduct the study, permissions were obtained from the authors to use and translate the tools into Urdu. Standardized procedures were followed for translation and adaptation. Permissions were obtained from psychiatry wards in hospitals to collect data from the patients. The demographic sheet collected information regarding one's schooling, age group, religious inclination, profession, socio-economic status, and household structure.

Applicants were briefed regarding the study's goals, it's objective, and aims, and informed consent was obtained. Privacy, identity, and the right to withdraw were assured. The questionnaire was distributed, and data were collected individually in written or oral form, accommodating participants' needs. The data collection took approximately 20 minutes per participant.

Results

The present research was conducted to explore the relationship between repressive defensive coping, identity confusion and social stress among non-suicidal self-injury psychiatric patients.

Table 1

Inter-Correlations Among Coping, Identity, and Social Stress (N=70)

It is hypothesized that there was likely to be a significant relationship between repressive defensive coping, identity confusion and social stress among non-suicidal self-injury psychiatric patients. It was assumed that there is likely to be a negative relationship of repressive defensive coping and identity confusion in non-suicidal self-injury patients and there is likely to be a positive relationship between repressive defensive coping and social stress in non-suicidal self-injury patients.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	M	SD
1. Social Stress	--	-.46**	-.37**	-.47**	-.64**	-.43**	-.66**	.21	.07	.09	.36**	-.29*	.37**	.37**	33.57	9.23
2. Repressive Defensive Coping		--	.88**	.96**	.25*	.15	.27*	.16	.16	.24*	-.14	.39**	-.03	-.22	27.16	6.29
3. Rationality			--	.72**	.25*	.16	.26*	.13	.09	.19	-.06	.24**	.07	-.17	9.64	2.47
4. Anti-Emotionality				--	.22	.12	.25*	.17	.19	.25*	-.18	.43**	-.09	-.23	17.51	4.27
5. Identity Scale					--	.84**	.89**	-.24*	-.06	.95	-.40**	.21	-.45**	-.60**	29.51	9.07
6. Identity Synthesis						--	.49**	-.25*	-.11	.04	-.21	.01	-.36**	-.39**	16.84	4.70
7. Identity Confusion							--	-.17	-.01	.12	-.45**	.32**	-.42**	-.63**	12.67	5.75
8. Non-Suicidal Self-injury								--	.78**	.75**	.38**	.58**	.55**	.36**	90.0	18.18
9. Internal emotional regulation									--	.55**	.29*	.56**	.13	.07	18.56	5.61
10. Social influence										--	.01	.67**	.11	-.11	12.40	7.30
11. External emotional regulation											--	-.27*	.49**	.42**	10.51	1.93
12. Sensation seeking												--	-.14	-.17	4.09	3.89
13. Addictive features													--	.64**	17.36	5.35
14. Urge														--	7.30	1.98

Negative significant correlations were found between social stress and coping mechanisms, rationality, anti-emotionality, identity factors, and sensation-seeking. Social stress positively correlated with external emotional regulation, addictive features, and urges. Repressive defensive coping significantly correlated positively with rationality, anti-emotionality, identity factors, social influence, and sensation-seeking. Rationality positively correlated with anti-emotionality, identity factors, identity confusion, and sensation-seeking. Anti-emotionality correlated positively with identity confusion, social influence, and sensation-seeking.

Identity factors correlated significantly positively with identity synthesis and confusion, negatively with non-suicidal self-injury, external emotional regulation, addictive features, and urges. Identity synthesis correlated positively with identity confusion and negatively with non-suicidal self-harm, addictive features, and urges. Identity confusion correlated positively with sensation-seeking and negatively with external emotional regulation, addictive features, and urges.

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Table 2

Multiple Regression Analysis showing predictors of Non-Suicidal Self-Injury(N=70)

Variable	Non-Suicidal Self-injury			
	B	SE	β	95 % CI
Constant	106.5*	7.9*		(90.7, 122.3)
Identity Synthesis	-.98*	.45*	-.25*	(-1.88, -.076)
R^2	.25			
ΔR^2	.06			
F	4.7*			

Note: *$p< .05$, B=unstandardized coefficients, SE=standard error, β=beta, CL= confidence interval, R^2=Multiple Regression Correlation Square

The overall regression model was significant, $F(1,68)=4.7$, $p>.05$. Identity synthesis emerged as a significant predictor of non-suicidal self-injury, indicating that a decrease in identity synthesis is associated with an increase in non-suicidal self-injury. The model explained 25% of the variance ($R^2 = .064$).

Table 3

Multiple Regression Analysis for Social Influence and its significant predictors (N=70)

Variable	Social Influence									
	Model 1			Model 2			Model 3			
	B	SE	B	B	SE	B	B	SE	β	95 % CI
Constant	5.0*	3.6*		-5.3**	6.2**		-18.1***	8.1***		(-2.3, 12.2)
Anti-Emotionality	.42*	.20*	.25*	.63**	.22**	.37**	.68***	.22***	.40***	(.02, .83)
Social stress				.20**	.10**	.26**	.39***	.12***	.51***	(.00, .39)
Identity Confusion							.45***	.19***	.35***	(.07, .83)
R^2	.06			.12			.18			
ΔR^2	.06			.05			.07			
F	4.5*			4.3**			4.9***			

Note: ***$p<.001$,**$p<.01$,*$p< .05$, B=unstandardized coefficients, SE=standard error, β=beta, CL= confidence interval, R^2=Multiple Regression Correlation Square

The overall regression model was significant, $F(1,68)=4.5$, $p<.001$. Anti-emotionality, social stress, and identity confusion were found to be significant predictors of non-suicidal self-injury. An increase in anti-emotionality, social stress, and identity confusion was associated with an increase in non-suicidal self-injury. The model explained 6% ($R^2 = .06$) for anti-emotionality, 12% ($R^2 = .12$) for social stress, and 18% ($R^2 = .18$) for identity confusion of the variance.

Table 4

Multiple Regression Analysis for External Emotional Regulation and Identity Confusion (N=70)

Variable			External Emotional Regulation	
	B	*SE*	β	95 % CI
Constant	12.4***	.51***		(11.4, 13.5)
Identity Confusion	-.15***	.04***	-.45***	(-.23, -.08)
R^2	.21			
ΔR^2	.21			
F	17.6***			

Note: ****p*< .001, *B=unstandardized coefficients, SE=standard error, β=beta, CL= confidence interval,* R^2=Multiple Regression Correlation Square

     The overall regression model was highly significant, $F(1,68) = 4.7$, $p > .05$. Identity confusion was identified as a highly significant predictor of external emotional regulation in non-suicidal self-injury. A decrease in identity confusion was associated with an increase in external emotional regulation. The model explained 21% of the variance ($R^2 = .21$).

Table 5

Multiple Regression Analysis for Sensation seeking, Identity confusion, and anti-emotionality (N=70)

	Sensation Seeking						
	Model 1			Model 2			
	B	SE	β	*B*	SE	*B*	95% CI
Constant	-2.7***	1.8***		-3.7***	1.8		(-6.3, .88)
Anti-emotionality	.39***	.10	.43***	.34***	.10	.37	(.19, .59)
Identity Confusion				.15***	.08	.22	(.01, .30)
R^2	.181			.227			
ΔR^2	.181			.046			
F	15.04			9.86			

Note: **p*< .05, *B=unstandardized coefficients, SE=standard error, β=beta, CL= confidence interval,* R^2=Multiple Regression Correlation Square

     The overall regression model was highly significant, $F(1,68) = 4.7$, $p < .001$. Both anti-emotionality and identity confusion emerged as highly significant predictors of sensation-seeking in non-suicidal self-injury. An increase in anti-emotionality and identity confusion was associated with an increase in sensation-seeking. The model explained 18% ($R^2 = .18$) for anti-emotionality and 23% ($R^2 = .23$) for identity confusion of the variance.

Table 6

Multiple Regression Analysis showing predictors of Addictive features, anti-emotionality, and non-suicidal self-injury (N=70)

Variable			Addictive Features	
	B	*SE*	*β*	95 % CI
Constant	25.2***	2.0***		(21.3, 29.1)
Anti-Emotionality	-.27***	.06***	-4.5*	(-3.9, -.14)
R^2	.21			
ΔR^2	.21			
F	17.5***			

Note: **p< .05, B=unstandardized coefficients, SE=standard error, β=beta, CI= confidence interval,* R^2=Multiple Regression Correlation Square

The overall regression model was significant, $F(1,68) = 17.5, p < .001$. Anti-emotionality was identified as a significant predictor of non-suicidal self-injury. An increase in anti-emotionality was associated with an increase in non-suicidal self-injury. The model explained 21% of the variance ($R^2 = .21$).

Table 7

Multiple Regression Analysis predicting urge and Identity confusion as predictors of non-suicidal self-injury (N=70)

Variable			Urge	
	B	*SE*	β	95 % CI
Constant	10.1***	.45***		(9.2, 10.1)
Identity Confusion	-.22***	.03***	-.63***	(-.28, -.15)
R^2	.40			
ΔR^2	.40			
F	45.4***			

Note: ****p< .001, B=unstandardized coefficients, SE=standard error, β=beta, CL= confidence interval,* R^2=Multiple Regression Correlation Square

The overall regression model was significant, $F(1,68) = 45.5, p < .001$. Identity confusion emerged as a significant predictor of urges in non-suicidal self-injury. A decrease in identity confusion was associated with an increase in urges. The model explained 40% of the variance ($R^2 = .40$).

Discussion

According to the studies conducted by Claes, Luyckx, and Bijttebier in 2014, self-injurious behaviors are addictive in nature as the person would likely to indulge in them repeatedly even after knowing the harmful impact on one's body as they provide them relief emotionally and psychologically. The correlation analysis in this study revealed a significant negative relationship between coping (repressive/defensive) with identity synthesis and identity confusion among the patient who often indulge in self-injurious behaviors. Research also revealed a positive correlation between social stress and non-suicidal self-injury behaviors, while revealing a negative relationship with identity confusion and identity synthesis.

Study conducted by Ostberg, Graziotin, Wagner, and Derntl in 2020 suggested that social stress can leads to one engage in continuous efforts to adjust one's identity or belief about himself which may encourage many individuals to indulge in risky behaviors for instance self-injurious behaviors to find relief. Consistent social pressures and confused identity can lead to poor coping mechanisms one adapts to deal with the stressors present in the environment. The results of the present study also align with the above-mentioned finds revealing that identity synthesis and identity confusion negatively predict non-suicidal self-injury while social stress predicted non-suicidal self-injury positively. Another study supported the idea that identity crisis are the significant predictors of self-harm behaviors (Luyckx, et al., 2015).

Limitations

- The study sample size was small because it was difficult to obtain within the certain time frame. So, the results can be used for further study direction but can't be generalized.
- Additionally, the sample is based on individuals who are facing psychiatric issues which suggested that results can't be used for normal population.
- Due to limited resources, the sample population as based on Lahore hospitals only, affecting the sample diversity.
- Correlational design was used to determine the relationship while longitudinal and experimental designs were recommended to further study the phenomena.

Declaration

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