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REMITTANCES, FAMILY SEPARATION, AND PSYCHOLOGICAL DISTRESS AMONG LEFT BEHIND HOUSEHOLDS IN PAKISTAN: VALIDATING A MEASUREMENT MODEL OF DUAL MENTAL HEALTH OUTCOMES

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Abstract
Pakistan is one of the top economies in the world in terms of labour emigration and receiving remittance, where currently more than 832,000 persons are registered to emigrate in 2022 while remittance inflows reached USD 31.3 billion during fiscal year 2021–2022 (State Bank of Pakistan, 2022; BEOE, 2022). Yet, at the same time, this migration system is huge, highly economic, and the psychological impact on the households that are left behind is gravely under researched. The literature in the field has identified a paradox; that is, while remittances help to enhance evaluative wellbeing and material security, family separation also increases levels of stress, depression, and psychological distress (Ivlevs et al., 2019; Lu, 2012; Ambugo & Yahirun, 2016). In the Pakistani context, these two pathways have not been taken into consideration and whether they can be measured in a valid psychometric model is also an area to explore. Based on the aforementioned arguments, this study employs a cross sectional quantitative design (N = 400) and posits a dual pathway Structural Equation Model (SEM) with remittance receipt volume and regularity as the predictors of evaluative wellbeing, perceived family separation as a predictor of depressive symptoms and perceived stress, and social support as moderating variable. Validated using existing scales PHQ 9 (depression), PSS 10 (perceived stress), and Cantril Self Anchoring Striving Scale (wellbeing) adopted for Pakistani sociocultural context, using Confirmatory Factor Analysis (CFA). The study uses BEOE migration outflow data for 2019 2022 along with the statistics of State Bank of Pakistan on remittance. BEOE migration outflow data for 2019 2022 and remittance figures provided by State Bank of Pakistan as secondary contextual anchors are used. The study fills the gap in the literature with a dual pathway measurement model for the high emigration developing economies, introduces psychometric approaches to measuring migration related mental health in non-Western Islamic family contexts, and provides policy relevant evidence to the Pakistan's migration governance framework.

Keywords: remittances, family separation, psychological distress, left behind households, Pakistan, structural equation modelling, confirmatory factor analysis, wellbeing, depression, perceived stress, migration and mental health

1. INTRODUCTION

Pakistan is the one of the largest labour exporting countries in the world. A total of 14,114,918 Pakistanis registered for jobs abroad between 1971 and January 2025, of which 862625 workers left the country through official channels in 2023 (Gallup Pakistan, 2025). Ashraf (2022a) found by analysing the disaggregated occupational profile of the outflow from the country as provided by the Bureau of Emigration and Overseas Employment (BEOE) that the majority of these are male, low-to-semi-skilled with their departure leaving their wives, children, and dependent parents behind in prolonged physical separation. This has been furthered by Ashraf (2022b), who found that there is another, less publicized, group of Pakistani professionals (doctors, engineers, nurses, and information technology experts) who move to the United States and United Kingdom via the employer-sponsored visa route, without having to register as a BEOE. Including the gender component, Ashraf (2022c) found that female migrants represent less than one per cent of the total number of people who are registered to migrate from Bangladesh, and those who do migrate are far more likely to be employed in the healthcare sector in the UK and in domestic service in the Gulf region,

leaving a distinct pattern of left-behind households that are primarily female, with weak representation in decision-making positions, struggling with the double burden of managing their household economies without male breadwinners and the social norms that limit their decision-making authority. This study investigates the psychological implications of these migration patterns in terms of volume, composition, gender structure and geographical destination. Millions of Pakistani families receive remittances from outside the country and yet have to live with the constant absence of a spouse, parent or child. Remittances are not a separate economic benefit, but rather two the economic benefit and the psychological cost of separation – in one migration decision, of one family, and both examined separately in literature. This study contributes to filling this gap by developing and testing a measurement model of psychological relief from remittance and psychological distress from family separation among left-behind families in Pakistan based on a primary survey of 450 left-behind households in high migration districts of Punjab and Khyber Pakhtunkhwa.

Labour migration from Pakistan is one of the most economically impactful population movements in the developing world. The Pakistan Bureau of Emigration and Overseas Employment (BEOE) has recorded that a total of more than twelve million registered workers have left the country since the inception of systematic registration in 1971 and approximately 832,339 people are registered to depart the country in 2022 alone (BEOE, 2022). The macroeconomic importance of these outflows is also very high as remittance receipts have reached USD 31.3 billion in FY 21 22, making it the largest source of foreign exchange to the country, surpassing foreign direct investment (FDI) and official development assistance (ODA) (State Bank of Pakistan [SBP], 2022). More than 90% of Pakistani workers are absorbed by the Saudi Arabia and other Gulf Cooperation Council (GCC) countries, mostly in construction and transport and domestic service (BEOE, 2022).

What these aggregate figures mask is a reality that has not been adequately studied: Every migrant worker who moves away is leaving behind a spouse, children, parents or siblings who are affected in their life by the migration event in a way that is not reflected in remittance income or consumption figures. A key paradox has been identified in the global migration literature at the intersection of remittances, family separation and mental health. Remittances contribute to the subjective wellbeing and material living standards of recipient households, they reduce household poverty (Ivlevs et al., 2019; Joarder et al., 2017; Abdullah et al., 2021; Akay et al., 2014). Remittances, however, are not sufficient to offset the psychosocial costs created by the migrant family's physical absence, such as loss of social support, separation anxiety, increased burden on family to manage without the migrant, and increased risk of depressive symptoms (Lu, 2012; Bhugra, 2004; Castañeda & Buck, 2011; Ambugo & Yahirun, 2016).

Such a paradox has been reported in Indonesia (Lu, 2012), China (Lu et al., 2012; Tang, 2017), Bangladesh (Joarder et al., 2017), Ghana (Raturi & Cebotari, 2023), India (Bhandari et al., 2022), Nicaragua (Gustafsson, 2018), and the United States (Ambugo & Yahirun, 2016; Balasca, 2019), and others. However, in the Pakistani context, which has one of the worlds most advanced and comprehensive labour emigration programme, this stream of literature has been largely ignored. The literature which is available on Pakistan also mainly concentrates on macroeconomic results, political economy aspects of human capital outflow (Ashraf 2022a, 2022b and 2023), or on the welfare impacts of the household measured in terms of consumption and education indicators. Research into the dual impacts of migration on left behind households both on the mental health of the migrants and on the mental health of those left behind is still largely absent.

This study rectifies this lacuna. It suggests a cross sectional SEM design to examine a dual pathway measurement model, one representing the protective pathway and the other representing the adverse pathway, with social support as a moderator of the adverse pathway. Secondary data from BEOE and State Bank of Pakistan (SBP) for 2019–2022 is used to provide the contextual frame of the study, and validated psychometric instruments are used which have been adapted to the Pakistani sociocultural context.

Three research questions guide the enquiry:

RQ1: Does remittance receipt (volume and regularity) significantly predict higher evaluative wellbeing among left behind household members in high emigration districts of Pakistan?

RQ2: Does perceived family separation independently predict greater psychological distress (depressive symptoms and perceived stress) among left behind household members, net of remittance income?

RQ3: Does perceived social support moderate the relationship between family separation and psychological distress among left behind households in Pakistan?

The study advances on three fronts: empirical, first time validated dual pathway measurement model of migration linked mental health in Islamic extended family household settings; methodological, demonstrating the cross cultural applicability of measuring mental health using the PHQ 9, PSS 10 and the Cantril Scale in the context of extended family household in Pakistan; and theoretical, by integrating Stress and Coping Theory, Social Support Theory, and Human Capital Theory within a single explanatory framework for left behind mental health outcomes.

2. Contextual Background: Pakistan's Migration and Remittance System

2.1 Labour Outflows: BEOE Data 2019–2022

The BEOE official data for outflows of labour in 2019–2022 is given in Table 1. The pre COVID baseline of 625,876 workers in 2019 was followed by a pandemic induced collapse to 225,213 in 2020 and 288,280 in 2021, before a dramatic recovery to 832,339 in 2022—the highest single year total since 2015 (BEOE, 2022). Saudi Arabia has taken around 50–62% of the yearly outflows, while the UAE received 15–34% of the outflows, depending on the year. The study sample came from the two provinces of Punjab and Khyber Pakhtunkhwa having the highest provincial shares of 50 55% and 24 30% respectively (BEOE, 2022).

Table 1: Annual Labour Outflows from Pakistan and Remittance Inflows, 2019–2022

Year	Annual Outflow (N)	Primary Destination (%)	Remittance Inflows (USD Billion)	Year on Year Change (%)
2019	625,876	Saudi Arabia 53.2%	21.74	+9.2
2020	225,213	Saudi Arabia 60.6%	23.13	+6.4
2021	288,280	Saudi Arabia 54.0%	29.45	+27.3
2022	832,339	Saudi Arabia 61.9%	31.28	+6.2

Note. Source: BEOE (2022); State Bank of Pakistan (2022). Remittance figures on fiscal year basis (July–June).

This large exodus (more than 832,000 workers in 2022 alone) suggests that the same number of primary households in Pakistan were taking in migration events in 2022 as well. It is estimated that in 2022, 5.4 million people were directly affected due to the average Pakistani household size (6.5 persons per household; Pakistan Bureau of Statistics, 2017). The present study will focus on this population.

2.2 Remittance Flows: State Bank of Pakistan Data 2019–2022

Remittances received by Pakistan have significantly increased over the study period, with all time high of USD 31.3 billion in FY 2021–2022, a fall to USD 27.3 billion in 2022–2023, which was attributed to the exchange rate distortions that drove remittances through informal channels (SBP, 2022). The total remittance inflows in Saudi Arabia, the UAE, the UK, and other GCC countries represent more than 75% of all remittance inflows. Transfers received by the average remittance receiving household in Pakistan account for 22–35% of the household income, a level that can readily impact household consumption, healthcare utilization, and housing conditions (Abdullah et al., 2021; De Haas, 2007). However, being compensated for income is not the same as being compensated for social and psychological needs. This separation of a breadwinner family member creates psychosocial losses which cannot be compensated with remittance income as co residence is the norm in collectivist extended family culture, where men are expected to fulfil their relational obligations in person and where the social supports network of women is centred on household based interaction (Ashraf, 2022a; Lu, 2012; Bhugra, 2004). The material benefit/social psychosocial cost is the main substantive motivation of the present study.

3. LITERATURE REVIEW

3.1 Remittances and Well Being: The Protective Pathway

One of the most well established results from the migration development literature is the protective pathway: the subjective wellbeing of the members of the left behind household is improved after receiving remittances. Drawing on Gallup World Poll data from 114 countries, Ivlevs et al. (2019) discovered that family members abroad were associated with higher levels of evaluative wellbeing and positive affect, and that receipt of remittances was associated with additional increases in evaluative wellbeing for poorer contexts in particular. This effect was both cross nationally and within nation, indicating that it reflects a real causal mechanism, not a compositional effect.

In their research on rural to urban migrants in China, Akay et al. (2014) discovered that migrants' subjective well being showed a significant positive relationship with remittance levels, which they explained as a result of two types of satisfaction: altruistic satisfaction and fulfillment of contractual family obligations. Joarder et al. (2017) found remittances also have a significant effect on the happiness level of migrants and that the satisfaction level of origin households is not only related to the receiving of remittances but also to the number of migrants from the family living abroad. In a study of households in Pakistani administered Kashmir, Abdullah et al. (2021) reported that remittances had a significant positive impact on the socio economic status of the households and were found to be the main source of income for the receiving households, where the expenditure was allocated towards business expansion, house construction, health care, and children's education.

The protective pathway theory is theoretically described by de Haas (2007) which suggests that remittances are included in risk sharing and co insurance livelihood strategies that can enhance wellbeing, economic growth and poverty alleviation. But De Haas also warns that migration and remittances are not 'the panacea' to the structural development issues, in keeping with the dual path approach adopted in the current research.

The psychological effects of remittances at the household level is related to the extent to which a household is financially dependent on remittances from abroad, a notion that Ashraf (2022b) outlines in the Pakistani political economy context, where remittance inflows represent an important macroeconomic buffer but financial dependence on remigration introduces additional stress among the household members who remain in the country. Tang (2017) finds that in rural China, the higher the level of remittances, the greater the financial dependence on remigration and the greater the additional stress on the remaining members of the household.

3.2 Family Separation and Psychological Distress: The Adverse Pathway

The negative effect of family separation on psychological wellbeing, regardless of remittance income, the adverse pathway, is also well established but not as central to the literature on remittances in Pakistan. On the other hand, Lu (2012) showed that adults who were not accompanied by a migrant were more vulnerable to stress related health problems like hypertension and psychological stress like depression symptoms based on a longitudinal data from Indonesia. These results remained when certain relational scenarios were analyzed (spouses and parents left by adult children), as well as after adjusting for the effects of economic improvement through remittances.

In a survey based study conducted with adults in Chinese migrant sending households, Lu et al. (2012) reported higher levels of depressive symptoms (as measured by CES D) among adults in migrant sending households, compared to adults in non-migrant households, but found that cash remittances mitigated the mental health effects, providing empirical support for the dual pathway logic. In a clinical review, Bhugra (2004) noted that migration is a 'very stress inducing phenomenon' and reported high prevalence rates of depression, anxiety and psychological disorders in various migrant and migrant sending groups. There is a multifactorial stressor mechanism, including a depletion in social support, an increase in family responsibilities, concern about the safety of the migrant and continuity of income, and the disruption of family roles.

However, although the present study deals with the psychological consequences of financial obligation on receivers, a study conducted by Ambugo and Yahirun (2016) with new legal immigrants to the United States showed that remitters were at risk of developing major depressive episode and sadness, even after controlling for sociodemographic and health factors. Castañeda and Buck (2011) reported children being left behind experiencing long lasting emotional impacts such as attachment disruption, identity confusion and behavioural issues years after their parents left.

In Pakistan, Ashraf (2022a) has highlighted the psychological cost of HCOs, which is not well documented, as it breaks the social networks and support systems within the community, particularly within the family. Researchers Bhagat and Ali (2021) have found in the context of the Indian Muslim communities to be structurally similar to Pakistan's in their impact, that the material benefits of emigration were experienced mainly by the young men, but the psychological burden of leaving was concentrated on women and elderly parents; demographic groups who have been the heaviest social burden of male emigration.

Raturi and Cebotari (2023), based on panel data from Ghana, found that children's psychological wellbeing was shaped by the relationship between parents and children (i.e., which parent migrated), marital status of the migrant parent, and the gender of the child (suggesting that the adverse pathway is not uniform across the relational configurations). In India, Bhandari et al. (2022) observed that adult out migration had a positive impact on the subjective health and functional ability of older parents, but also had an impact on depressive symptoms and treatment seeking for chronic disease, thus illustrating the dual pathway within the same person.

3.3 Social Support as a Moderating Variable

Social support has been the most consistent protective factor identified to the psychological impacts of family separation for migration. Lu (2012) identified some support for the stress buffering effect of social support from extended family members, albeit with different effects for men and women. The loss of social connections is believed to be the mechanism through which migration negatively affects mental health, while the importance of sustaining social ties is critical in improving resilience for migrants and left behind people alike (Torres and Casey, 2017). In the literature review on the protective factors that influence post migratory mental health performed by Brunnet et al. (2020), social support was also one of the most cited protective factors, in addition to psychological support and good quality of life in the host context.

The extended family (biradari) system is the main source of social support for the majority of households in Pakistan. Women can either become more dependent on their extended family members or less on their family members if the migration involves moving residence or going further away (Ashraf, 2023). Siriwardhana and Stewart (2013) highlight

the importance of individual and community resilience as potential protective factors from worsening mental health outcomes associated with migration and the need to better understand the significance of resilience factors in mental health research with migrants and separated people. Gatt et al. (2020) provide an empirical example of how migrant youth have more traumatic events than the comparison group of non-migrants, but they have more resources for psychological resilience. They show that social adaptation and activation of support networks can buffer psychological costs.

3.4 Migration, Mental Health, and Measurement: Cross Cultural Challenges

One of the key methodological challenges in migration mental health research highlighted by Brunnet et al. (2020) is that most psychological assessment tools are developed in Western contexts and could be culturally inappropriate in non-Western sociocultural settings. Their review confirms that depression, anxiety and PTSD are the most studied psychopathological reactions, and that cultural variables are important in shaping the perception, report and expression of psychological distress. The need for culturally validated instruments is especially the case in Islamic family contexts, which has different phenomenological expressions of psychological distress, family obligation, and social support in comparison with Western individualistic societies.

In Nicaragua, Gustafsson (2018) shows that on the health side of things, there are a set of benefits and drawbacks associated with migration, and that the emotional effects of migration are felt not only by the migrants, but also by transnational families. These findings highlight the universal aspects of migration across different cultures, while also emphasizing the context dependency. Tovar Cuevas et al. (2019) conducted a systematic review of 85 studies on migration and health in origin countries and reported positive and negative impacts on children and adolescents, women, older adults, and returned migrants, noting a need for more research on the quantitative and psychometric assessment of migration and health outcomes in origin countries.

3.5 Research Gaps and Contribution of the Present Study

The present study is motivated by three convergent gaps. The present study is motivated as follows: The context of Pakistan being one of the top ten countries for immigrants and remittances receipts, there is yet no study to the best of our knowledge that has utilized a formally validated dual pathway SEM framework to explore left behind mental health in the Pakistani context. Second, there are no formal Urdu versions of the existing psychometric tools that measure migration related depression, stress, and wellbeing for Urdu speaking extended family households in high migration districts. Thirdly, the moderating effects of social support in the relationship between family separation and psychological distress has never been studied in Pakistan using structural modelling. The present study addresses all three gaps.

4. THEORETICAL FRAMEWORK

The study draws from three theories and combines them into a single, dual pathway model.

The adverse pathway is based on the Stress and Coping theory (Lazarus & Folkman, 1984). This perspective defines family separation as an objective stressor appraised as threatening when it disrupts normative family roles, decreases perceived support within the family, and increases uncertainty about the migrant's welfare and income continuity for the family. Depressive symptoms and perceived stress are the dependent variables in the adverse pathway of the psychological outcomes of this appraisal process. The stress buffering hypothesis (Torres & Casey, 2017; Brunnet et al., 2020; Lu, 2012) is reflected in the inclusion of social support as a coping resource that moderates the relationship between the separation stressor and these outcomes.

The moderating effect of social support is based on Social Support Theory (Cohen & Wills, 1985). The buffering model suggests that social support buffers people from the pathogenic effects of stressful events by offering emotional, informational and instrumental resources that help to diminish the perception of threat and promote successful coping. As per the Pakistani context, the extended family networks (biradari) serve as the major source of all three types of support to the women left behind by their husbands, and hence, social support is of theoretical importance and empirically measurable in these groups (Ashraf, 2022a; Siriwardhana & Stewart, 2013).

The protective pathway is based on Human Capital Theory (Sjaastad, 1962; Becker, 1964). Migration is an investment choice, in which the household collectively decides that the expected stream of foreign earnings (via remittances) is higher than the household's direct and psychosocial costs of family separation. The return on this investment is the protecting pathway, which leads to an enhancement of material living standards and evaluative wellbeing for left behind households (Ivlevs et al., 2019; Joarder et al., 2017; Abdullah et al., 2021). The Human Capital Theory, however, does not imply that the economic returns are sufficiently large to cover the non-economic and psychosocial

costs, as such the negative pathway needs to be modelled concurrently and independently (Ambugo & Yahirun, 2016; Balasca, 2019).

The conceptual model is given in figure 1. The hypotheses posited here are that: Remittance receipt (number and frequency) will be linked to increase evaluative wellbeing (H1: positive). Family separation (duration and intensity) is hypothesized to relate to depressive symptoms, in a positive direction (H2), and to perceived stress, in a positive direction (H3), controlling for remittance income. Social support is hypothesized to moderate both H2 (H4) and H3 (H5) in that a greater amount of social support reduces the positive association between family separation and psychological distress outcomes.

Figure 1: Conceptual Dual Pathway Model

Construct	Direction	Pathway	Hypothesis
Remittance receipt	→	Evaluative well being (Cantril)	H1: positive (+)
Family separation	→	Depressive symptoms (PHQ 9)	H2: positive (+)
Family separation	→	Perceived stress (PSS 10)	H3: positive (+)
Social support	× Family separation →	Depressive symptoms	H4: negative (−), moderates H2
Social support	× Family separation →	Perceived stress	H5: negative (−), moderates H3

Note. The dual pathway model captures simultaneously the protective effect of remittances on well being and the adverse effect of family separation on psychological distress, with social support as a moderator of the adverse pathway.

5. METHODOLOGY

5.1 Research Design

The study's design is a cross sectional quantitative survey type which is appropriate for the validation of a psychometric measurement model and testing of structural path relationship. The research objectives of the present study require using a cross sectional design because it was intended to: (a) validate the factor structure of the adapted psychological instruments in a Pakistani population, and (b) test the simultaneous operation of the dual pathway at one point in time, not to follow the mental health trajectories of individual participants over time. The validated model is recommended as a second step research plan for future extension in a longitudinal fashion.

5.2 Population, Sampling, and Sample Size

The targeted population consists of adults (18+ years) of left behind households in Pakistan with the primary male breadwinner working abroad for at least six months. To ensure ecological validity of the BEOE defined migration system, the study focuses on the provinces of Punjab and Khyber Pakhtunkhwa (KPK), which provide 80–85% of registered labour migrants of Pakistan.

To identify high emigration districts within each province, a purposive sampling technique is used. Primary districts were selected in Punjab (Sialkot, Gujranwala, Faisalabad, Dera Ghazi Khan) and KPK (Swat, Lower Dir, Mardan, Rawalpindi) based on BEOE district level data that indicated the highest per capita outflow in 2022 (BEOE, 2022). The respondents are obtained through the snowballing method with the initial respondents from the household in the districts where they are recruited by the BEOE registered Overseas Employment Promoters (OEPs) and by local agencies of the districts' community welfare offices.

The sample size (N = 400) is based on the SEM power requirements. A sample size of 400 is sufficient for a power of 0.80 to detect a medium effect size ($f^2 = 0.15$) at an $\alpha = 0.05$ for CFA and SEM models with 18 observed indicators and 5 structural paths (Hair et al., 2014). The sample consists of 200 participants from KPK and 200 from Punjab, of which the female respondents are about 70% reflecting the gender ratio of left behind adults in Pakistani households of migrants.

5.3 Instruments and Measurement

Five instruments are used for measurement, each instrument is forward back translated with the help of Urdu bilingual academic reviewers, and pre tested on pilot sample of 40 participants from Faisalabad district.

Table 2: Psychometric Instruments Used in the Study

Construct	Instrument	Items	Response Scale	Original Source
Depressive symptoms	PHQ 9 (Urdu adapted)	9	0–3 Likert (4 point)	Kroenke et al. (2001)
Perceived stress	PSS 10 (Urdu adapted)	10	0–4 Likert (5 point)	Cohen et al. (1983)
Evaluative well being	Cantril Scale	1	0–10 ladder	Cantril (1965)
Social support	MSPSS (Urdu adapted)	12	1–7 Likert (7 point)	Zimet et al. (1988)
Family separation	Researcher developed composite	8	1–5 Likert	Present study

Note. MSPSS = Multidimensional Scale of Perceived Social Support. PHQ 9 = Patient Health Questionnaire. PSS 10 = Perceived Stress Scale. All instruments translated to Urdu following WHO guidelines for cross cultural adaptation.

A Family Separation Composite Scale (FSCS) is created for this study. Eight items assess: length of the current separation period (in months), communication (calls/week), subjective loneliness, role burden, anxiety regarding the migrant's safety, and perceived social contact. To validate the measurement model of this scale, the unidimensionality and factor loadings are assessed using CFA. The indicators of receipt of remittances are operationalized in two objective items: (a) average monthly remittance amount received (PKR) and (b) regularity of receipt (always/usually/sometimes/rarely/never), and a composite remittance indicator is used.

5.4 Secondary Data Integration

BEOE outflow data at district level are used as controls for 2019–2022, and each person's place of residence is related to the district's annual per capita out migration rate. The study's macro level frame is contextualized using data on remittances from the State Bank of Pakistan (2022) as this provides further corroboration to the remittance receipt pattern as reported by the study participants. The secondary data sources support the study's assertions of sample representativeness and external validity.

5.5 Analytical Strategy

Data analysis is carried out in two stages, following the two steps recommended for SEM (Anderson & Gerbing, 1988). For Confirmatory Factor Analysis (CFA), Phase 1 involves running the analysis in IBM AMOS 27 software, which evaluates the measurement model. Fit is evaluated using multiple indices: CFI ≥ 0.90 (acceptable) / ≥ 0.95 (good); RMSEA ≤ 0.08 (acceptable) / ≤ 0.05 (good); SRMR ≤ 0.08; and chi square/df ≤ 3.0. Average Variance Extracted (AVE ≥ 0.50) and Composite Reliability (CR ≥ 0.70) are used to measure convergent validity. To check the discriminant validity, the AVE must be higher than the squared inter construct correlation for any two constructs.
The full structural model is estimated for Phase 2, with remittance receipt, family separation, and social support as exogenous variables, and depressive symptoms, perceived stress, and evaluative wellbeing as endogenous variables, as well as the two product indicators of social support × family separation to test the moderation hypotheses (H4 and H5). Bias corrected confidence intervals for indirect effects are estimated with 5,000 bootstraps. All analyses also account for the respondent's sex, age, level of education, income, length of time lived in the country, and province of origin.

5.6 Ethical Considerations

Informed written consent is obtained before data collection. Participants are told it is a voluntary program, that data is for academic research only and that they can leave at any time without consequence. All data is anonymized before analysis and kept in password protected servers at the institutional level.

6. FINDINGS AND THEORETICAL DISCUSSION

6.1 Measurement Model

The CFA is predicted to support a five factor model with satisfactory to good model fit (CFI ≥ 0.92; RMSEA ≤ 0.07) based on the previously established five factor structure for the PHQ 9 and PSS 10 in South Asian populations. The main methodological value is the evidence provided to prove the cross cultural validity of this measurement battery in an Islamic extended family culture in Pakistan, which is not covered in the cross cultural validation studies of any

of the three adapted batteries. Brunnet et al. (2020) pinpoint exactly this issue: the majority of assessment instruments are from Western traditions and need cultural validation prior to clinical and research use outside of the West.

6.2 Hypothesis H1: Remittances and Evaluative Well Being

As expected based on the research of Ivlevs et al. (2019), Joarder et al. (2017), and Abdullah et al. (2021), the volume and regularity of remittances received should positively and significantly predict Cantril Scale evaluative wellbeing scores ($\beta > 0$, $p < .05$). This is likely to be more pronounced among households that are receiving regular remittances than those that are receiving irregular remittances, and this is consistent with the uncertainty reduction mechanism De Haas (2007) proposes. The frequency of remittances, in the Pakistani setting, could be an indicator of perceived family stability, which can exert a more psychological influence than remittance value.

6.3 Hypotheses H2 and H3: Family Separation and Psychological Distress

As suggested by Lu (2012), Lu et al. (2012), and Bhugra (2004), the family separation will have a strong positive effect on both PHQ 9 depressive symptoms (H2) and PSS 10 perceived stress (H3) while controlling for remittance income. The key empirical question that needs to be addressed in order to evaluate the dual pathway model is whether family separation has an independent effect on the outcome after accounting for income. In the literature, there is strong evidence for the dominance of the psychosocial mechanisms in separation periods of more than 6 months, beyond which the role of communication and remittances as buffers to stress diminishes (Castañeda & Buck, 2011; Ambugo & Yahirun, 2016).

The negative pathway in Pakistan could be further heightened by the cultural aspects which are specific to the Pakistan context. Islamic marriage norms set high expectations on co residence and husband's physical presence as a religious and social obligation which may cause shame, stigma and social pressure to left behind wives due to extended absences, where such a burden is not included in western instruments. The FSCS attempts to measure this by using its role burden and social perception scales.

6.4 Hypotheses H4 and H5: Social Support as Moderator

As Brunnet et al. (2020), Torres and Casey (2017), and Siriwardhana and Stewart (2013) suggested, consistent with the expectations of the present study, higher perceived social support from family, friends, and significant others (subscales MSPSS) is expected to reduce the positive association of family separation and psychological distress. Within the Pakistani biradari context, the extended family system can provide social and emotional services, in some respects, that are not found in other contexts where nuclear families are more prevalent. The biradari network is also a key form of resilience for migrant sending families, indicating that the moderating effect of social support might be higher in Pakistan than that observed in other studies in China (Lu, 2012) and Indonesia (Lu, 2010) respectively.

A gender differentiated analysis is expected too. In 6 countries, Gatt et al., (2020) documented that the effect of trauma and social support on the youth differed by gender. Given the expectation of female respondents to experience greater adverse pathway effects (in light of normative gender role constraints on independent coping), and greater social support moderation effects (in light of greater integration in extended family networks) in the Pak context, it is hypothesized that this group of left behind adults will experience these stronger pathway and moderation effects. Male left behind household members (who are mostly the elderly parents of the migrant) might experience greater benefit perceptions of remittances, but also less benefit activation from social support.

7. Implications

7.1 Theoretical Implications

The dual pathway measurement model makes three contributions to the field of migration mental health. First, it incorporates both the protective and adverse pathways which the literature has separately shown to occur in the first place within a single validated SEM framework, so that direct comparisons can be made regarding the relative magnitudes and net effects of both pathways. Second, it brings social support into the picture as a modelled rather than a measured variable, thereby allowing for estimates of conditions which may buffer or amplify the adverse pathway. Third, it extends validated psychometric assessment to an under represented sociocultural context (Pakistani extended family households based on Islam), providing cross cultural evidence that is included in the measurement literature identified by Brunnet et al. (2020) as a priority.

7.2 Methodological Implications for TPM

There are three main methodological contributions. First, the cross cultural psychometric knowledge of the adapted PHQ 9, PSS 10, MSPSS and FSCS in a Pakistani sample is furthered with the validation of the instrument by CFA. Secondly, the presentation of testing procedures for measurement invariance (multi group CFA by gender, province)

offers a methodological model to other researchers using Western instruments in South Asian and Islamic cultural contexts. Third, the SEM moderation testing strategy offers a worked methodological example that can be applied to researchers in the fields of migration, health psychology and applied psychometrics.

7.3 Policy Implications

The study's findings have implications for policy in the context of migration governance in Pakistan. Confirmed dual pathway would suggest remittance sensitive migration policy, which measures the effectiveness of migration governance largely in terms of remittance flows, is incomplete, in that it optimizes the protective pathway while overlooking the adverse pathway that also exists. Possible policy measures include: compulsory family counselling and psych education programmes before dispatch as part of BEOE protectorates; compulsory post departure welfare monitoring of left behind families by OEPs; mental health outreach programmes in the community in districts with high migration rates through the district health authorities; and bilateral agreements with the Gulf countries to provide access through regular communication and family visit programmes for Pakistani workers. The BEOE data infrastructure already measures high migration districts with accuracy (BEOE, 2022); mental health outreach efforts can be deployed through this administrative framework and are scalable.

8. CONCLUSION

The labour migration system in Pakistan contributes to the remittance inflow to the country, which is estimated to be about USD 27 31 billion annually, and holds a central role in the well being of households in the province of Punjab and Khyber Pakhtunkhwa in Pakistan. However, there has been very little systematic psychometric study of the psychological impacts of this separation of families, which is the precondition for these economic flows in Pakistan. The current study aims to fill this gap by proposing a validated SEM model with dual pathways: remittances' protective association with evaluative wellbeing and family separation's adverse association with depressive symptoms and perceived stress, and with social support as a moderator of the adverse pathway.

The study has three levels of contribution. Empirically, it will present the first validated psychometric measurement model for mental health related to migration in left behind households in Pakistan based on the BEOE and SBP administrative data from 2019 2022. Methodologically, it will show the cross cultural adaptation and validation procedures of the Urdu version of PHQ 9, PSS 10, MSPSS for Urdu speaking Islamic family context as well as the researcher developed Family Separation Composite Scale. Theoretically, it will combine Stress and Coping Theory, Social Support Theory, and Human Capital Theory in one explanatory framework with a dual pathway that will address the fundamental paradox in the global migration mental health literature: remittances have positive impacts on mental health despite not eradicating the psychological suffering of separation that renders remittances possible.

The findings will help the academic and policy communities to get a clearer picture of the social support conditions that minimize the psychological cost to Pakistan's behind the scenes households of its migration system, rather than the economic cost.

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