

Researching identity styles in Pakistan: confirmatory factor analysis and associations with commitment and value priorities

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**Researching Identity Styles in Pakistan:
Confirmatory Factor Analysis and Associations with
Commitment and Value Priorities**

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**Researching Identity Styles in Pakistan:
Confirmatory Factor Analysis and Associations with Commitment and Value Priorities**

For Peer Review Only

Abstract

Identity styles – informational, normative and diffuse-avoidant – have been studied widely across North America and Europe, but infrequently in “non-Western” cultures. We tested the factorial structure of the Identity Styles Inventory-5 among 479 young adults in Pakistan. Findings supported the predicted three-factor solution, but only when numerous poorly-performing items were deleted. We further tested associations among identity styles, identity commitment, and value priorities. As expected, informational and normative styles were associated with higher commitment, whereas diffuse-avoidant style was associated with lower commitment. The three identity styles showed a pattern of divergent associations with value priorities that mostly, but not entirely, replicated the pattern of associations previously found among US and European samples. We conclude that Berzonsky’s three identity styles can be detected in a Pakistani cultural context, but that the ISI-5 may not fully capture the breadth and complexity of identity formation processes among Pakistani youth.

Keywords: *Identity styles; confirmatory factor analysis; commitment, value orientations; culture; Pakistan*

Researching Identity Styles in Pakistan:

Confirmatory Factor Analysis and Associations with Commitment and Value Priorities

In this study, we evaluate the applicability of Berzonsky's (1989, 2011) model of identity styles, consisting of informational, normative, and diffuse-avoidant styles, in a Pakistani context. The Identity Style Inventory (ISI; Berzonsky, 1989, 2013) has been extensively used to measure individual differences in identity construction, especially in Western cultural contexts, and the three identity styles have often been assumed to apply universally (Berzonsky, 2011). Pakistan is an important context in which to study identity styles, because previous research has suggested that the identity style construct may operate differently there than in Western contexts (e.g., Hassan, Vignoles, & Schwartz, 2017; Tariq, 2012).

Identity Formation: Theories and Measurement

Much research on identity formation has been conducted following the pioneering theoretical work of Erikson (1950, 1963, 1968). Erikson described identity formation as a crucial developmental task that adolescents must negotiate if they are to navigate the transition to adulthood successfully, and his ideas have inspired much subsequent research. In particular, Marcia (1966, 1980) and Berzonsky (1989) have played a prominent role in establishing empirical instruments based upon Erikson's ideas.

Marcia (1966) framed identity formation in terms of presence/absence of dimensions of "exploration" and "commitment". Exploration refers to sorting through various potential choices, and commitment refers to deciding to adhere to one or more of the options considered. Marcia further divided these dimensions into "high" versus "low" and subdivided them to derive four identity statuses: (a) *Identity Achievement*, where exploration is followed by commitment; (b) *Moratorium*, where exploration is underway, but few commitments have

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3 been made; (c) *Foreclosure*, where commitments are made without prior exploration; and (d)
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5 *Diffusion*, defined by the absence of commitments or systematic exploration.

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7 Building on the identity status model and adopting a constructivist epistemology
8 where people are viewed as active agents who develop their own identities, Berzonsky's
9 (1989) theory of identity styles focuses on the cognitive processes that individuals use to
10 formulate a sense of who they are and the reality within which they live. Berzonsky described
11 these processes as giving rise to three *identity styles*, labeled as informational, normative and
12 diffuse-avoidant. According to Berzonsky (1989, 2011), people using an *informational style*
13 actively and deliberately seek out, elaborate on, and evaluate self-relevant information,
14 enacting commitments on the basis of information they have sought by themselves (see
15 Berzonsky, 2003). Those using a *normative style* conform to the expectations held by
16 significant others and reference groups; these individuals are found to have high levels of
17 commitment, but their commitments often not self-chosen but rather are influenced by norms
18 and values that they and their referent group hold (see Berzonsky, 2003, 2011). Individuals
19 with a *diffuse-avoidant style* tend to procrastinate or strategically avoid confronting identity-
20 related issues, and hence they typically lack commitments (see Berzonsky & Ferrari, 2009;
21 Berzonsky, Ciecuch, Duriez, & Soenens, 2011). Given this pattern of findings, Berzonsky
22 (2011) suggested that these three identity styles underlie Marcia's (1966) identity statuses: an
23 informational style underlies moratorium and achievement, a normative style underlies
24 foreclosure, and a diffuse-avoidant style underlies diffusion.

25 26 27 **Identity Style Inventory: Correlates and Application across Cultures**

28
29 The Identity Style Inventory (ISI) has been the most widely used instrument to assess
30 and measure the three identity styles (Bosch & Card, 2012). As of 2013, six versions,
31 including a revision of the ISI-4, had been constructed: ISI-1 (Berzonsky, 1989), ISI-2
32 (Berzonsky, 1992a), ISI-3 (Berzonsky, 1992b), ISI-4 (Smits et al., 2009), ISI-4 Revised
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3 (Berzonsky, Soenens, Luyckx, Goossens, Dunkel, & Papini, 2011) and ISI-5 (Berzonsky,
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5 Soenens, Luyckx, Smits, & Papini, 2013). Researchers have tested the associations of identity
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7 styles with numerous psychological variables, notably identity statuses (Berzonsky &
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9 Neimeyer, 1994), commitment (Berzonsky, 2003), psychological well-being (Phillips &
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11 Pittman, 2007; Vleioras & Bosma, 2005), value orientations (Berzonsky, Cieciuch, et al.,
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13 2011; Berzonsky & Papini, 2014), causality orientations (Smits, Soenens, Vansteekiste,
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15 Luyckx, & Goossens, 2010), academic achievement (Xu, 2009), cognitive reasoning
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17 processes (Berzonsky et al., 2013), parenting (Smits, Soenens, Luyckx, Duriez, Berzonsky, &
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19 Goossens, 2008) and personality traits (Dollinger, 1995), to name a few.
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22 The ISI has been used in various cultural contexts. According to Berzonsky (2011,
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24 2013), English or translated versions of the ISI have been used in Australia, Belgium,
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26 Canada, the Czech Republic, Denmark, Finland, Germany, Greece, Iran, Italy, the
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28 Netherlands, Poland, Spain, Switzerland, Slovakia, and Turkey. Most of these countries are in
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30 what is widely referred to as the Western world – Europe, North America, and Oceania.
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32 Relationships between identity styles and other correlates have tended to be consistent across
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34 the cultural contexts sampled (e.g., Berzonsky, Macek, & Nurmi, 2003; Crocetti & Shokri,
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36 2010; Krettenauer, 2005; Soenens, Duriez, & Goossens, 2005). On this basis, Berzonsky
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38 (2011) suggested that identity formation styles might generalizable across cultures, this
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40 implies testing applicability of the ISI measure in wider cultural contexts.
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44 However, relatively little previous research using the Identity Style Inventory has
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46 been conducted in non-Western countries—and even less research has sought to *validate* the
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48 measure for use in such contexts (but see Crocetti & Shokri, 2010; Tariq, 2012, for two
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50 exceptions). It is important to examine carefully how the ISI has been used in other cultures
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52 and to evaluate the psychometric support across cultural contexts, so that the use of the ISI in
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54 influencing policy and practice in diverse cultural contexts can be appropriately evaluated.
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3 According to Berzonsky (2011) and Berzonsky et al. (2013), psychometric properties of the
4 ISI-3 in particular, when translated and used in various cultures, have been acceptable.

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7 However, the psychometric properties of the ISI versions in these studies were typically
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9 evaluated only in terms of Cronbach's alpha coefficients. Berzonsky et al. (2013, p. 895)
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11 noted that alpha coefficients for scores on the ISI-3 subscales range from .60 to .75.

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13 However, compared to the other identity styles, the normative identity style has often shown
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15 lower reliability, especially in studies where the original version has been translated into
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17 different languages (e.g., Berzonsky et al., 2003; Crocetti, Rubini, Berzonsky, & Meeus,
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19 2009; Crocetti & Shokri, 2010; Xu, 2009). Moreover, no published study that we are aware
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21 of has yet evaluated the item-level factorial structure of any of the ISI measures beyond their
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23 cultures of origin (i.e., USA and Belgium). Therefore, the first goal of our current study was
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25 to test the item-level factor structure of the ISI-5 in a new cultural context, namely Pakistan.
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28 **Validating the ISI in other Cultures: The example of Pakistan**

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31 Very different from the Western contexts where many theories on identity formation
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33 were originally developed, Pakistan was established based on a nationalist religious ideology
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35 (Jalal, 1995). When the country was founded in 1947, the most defining element of the new
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37 state was that it would be founded upon Islamic ideology (Alvi, 2002; Marsden, 2005). Under
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39 this nationalistic religious ideology, some traditional practices were rejected as backward or
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41 as a residue of Hindu colonialism. Consequently, giving rise to multiple and complex
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43 influences on identity formation in the country, including the impacts of religion, region,
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45 caste, nationalism, creed, and language. In a recent study across 33 nations, Gelfand et al.
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47 (2011) described Pakistan as having the "tightest" norms of all nations sampled, whereas the
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49 USA and Belgium, where versions of the ISI have been developed, were characterized by
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51 relatively "loose" norms and more openness to diversity. Pakistani culture can thus provide
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53 an interesting context for testing the cross-cultural validity of identity style scores.
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Factorial Structure of the Measure

Only one previous unpublished study has tested any version of the ISI in Pakistan. In her PhD study, Tariq (2012) conducted confirmatory and exploratory analyses of the ISI-4 (Smits et al., 2009) among a sample of 150 Pakistani adolescents. She found lower-than-expected reliabilities for the informational ($\alpha = .60$) and diffuse-avoidant styles ($\alpha = .60$), and poor reliability for the normative style ($\alpha = .46$). Furthermore, a measurement model using the original scoring algorithm provided an unacceptable fit to the data (CFI = .59, RMSEA = .07). To address these problems, with the help of a committee of experts, Tariq reviewed each item on the basis of its content and loading and reassigned many items to different style categories. For example, a diffuse/avoidant item (“*I try to avoid personal situations that require me to think a lot and deal with them on my own*”) and an informational item (“*I have a definite set of values that I use to make personal decisions*”) were reassigned to the normative identity style, because the committee believed that both of these items reflected dependency on others. Moreover, Tariq (2009) included the 10-item commitment scale, which is strongly conflated with the identity styles and may have distorted the factor structure.

Other than Tariq’s (2012) study in Pakistan, validation studies of the ISI in Italian (Crocetti et al., 2009) and Iranian (Crocetti & Shokri, 2010) samples provide useful comparators for the current research. In these studies, the authors relied on item parceling when testing the factorial structure of the ISI. Perhaps because of the parceling approach, the three-factor solution was confirmed without discarding any items from the style subscales. Item parceling is a useful way of creating just-identified latent variables for use in structural models when the factorial structure of the measures has already been established (Little, Cunningham, Shahar, & Widaman, 2002). However, parceling does not provide a way of

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3 testing whether individual items are performing as expected, because the items are combined
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5 with each other and so their individual performance cannot be separated.
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7 Hence, our first goal was to provide a more stringent test of the factorial structure of
8
9 the ISI-5 items in a Pakistani sample. We conducted a confirmatory factor analysis (CFA)
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11 using individual items, rather than item parcels (cf. Crocetti et al., 2009; Crocetti & Shokri,
12
13 2010). This allowed us to identify items with low loadings, as well as those that cross-loaded
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15 (i.e., did not load solely on their target factor). Eliminating, rather than reclassifying, poorly
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17 loading and cross-loading items (see Worthington & Whittaker, 2006) would help create a
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19 more valid instrument to measure Berzonsky's (1989) theoretical constructs in a new cultural
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21 context. Moreover, examining which items performed better or worse might reveal subtle
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23 differences in the meanings of the three identity styles in a non-Western culture such as
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26 Pakistan.
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28 **Associations of Identity Styles with Related Constructs**

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30 Identity styles are often studied in association with identity commitment (Berzonsky,
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32 2003) and value orientations (S.H. Schwartz, 1992, 2007) in past Western research.
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34 Therefore, in the present study we aimed to examine the similar associations of identity styles
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36 with measures of identity commitment and value orientations (Berzonsky et al., 2011) albeit
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38 in the different cultural context i.e., Pakistan.
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42 As reviewed above, both the informational and normative styles have been theorized
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44 as routes to higher commitment, whereas the diffuse-avoidant style theoretically entails a lack
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46 of commitment—and these predictions have been abundantly supported in previous studies
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48 (e.g., Berzonsky, 2003, 2004; Berzonsky et al, 2013; Crocetti & Shokri, 2010; Kerpelman et
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50 al, 2012; Vleioras & Bosma, 2005; Zimmermann, Mahaim, Mantzouranis, Genoud, &
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52 Crocetti, 2012). Hence, we sought to establish whether previous findings linking information
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54 style and normative style to higher commitment and diffuse-avoidant style to lower
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3 commitment could be replicated in a very different cultural context from those that have
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5 generally been studied in the identity styles literature.
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7 Although informational and normative styles should be similarly related to identity
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9 commitment, they can be expected to show diverging associations with personal value
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11 priorities (Berzonsky, Cieciuch, et al., 2011; Berzonsky & Papini, 2014). Like identity styles,
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13 value priorities are cognitive dimensions that serve as an important basis for making major
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15 life decisions; and developing a clear set of values may also be one of the main outcomes of
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17 identity formation (Marcia, 1966). S.H. Schwartz's (1992, 2007) model of individual-level
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19 value priorities has been validated across a wide range of cultural contexts. In this model,
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21 human values are organized into a circumplex structure defined by two higher-order bipolar
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23 dimensions: *openness to change versus conservation*, which captures the conflict between
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25 values that emphasize independence (self-direction, stimulation) and values that emphasize
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27 order and self-restriction (tradition, conformity, security), and *self-transcendence versus self-*
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29 *enhancement*, which contrasts values that emphasize empathy and interest for others
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31 (universalism, benevolence) with those that priorities one's own self-interest and dominance
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33 over others (achievement, power). One value, *hedonism*, is less well captured by the two
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35 bipolar dimensions, because it is related to both openness and self-enhancement (S. H.
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37 Schwartz, 2007), and so it is treated separately here.
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41 Theoretically, openness to change is closely aligned with the definition of an
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43 informational identity style, where the individual makes her/his own decisions (self-direction)
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45 and is interested in exploring new experiences (stimulation); whereas conservation values are
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47 closely aligned with the definition of a normative identity style, where the individual follows
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49 what is expected of her/him by close others and by society (tradition, conformity). It is less
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51 clear how the second bipolar dimension, self-transcendence versus self-enhancement, should
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53 relate theoretically to identity styles. Finally, hedonism implies a carefree approach to life
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3 with little concern for others, which might be characteristic of those using a diffuse-avoidant
4 style, but uncharacteristic of those using a normative style.
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7 Two previous studies conducted in Western nations have supported this expected
8 pattern of associations: Berzonsky, Ciecuch, et al. (2011) in Poland, and Berzonsky and
9 Papini (2014) in the United States, found that the informational identity style was associated
10 with openness (vs. conservation) values, whereas the normative style was associated with
11 conservation (vs. openness) values. They also reported that hedonism was positively related
12 to the diffuse-avoidant style and negatively to the normative style. Additionally, the
13 informational style was associated with self-transcendent (vs. self-enhancing) values in both
14 studies, whereas other relationships were inconsistent across the two studies.
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24 We expected similar associations between value priorities and identity styles within
25 our Pakistani sample. In particular, we expected that openness to change (vs. conservation)
26 would be positively related to the informational style and negatively related to the normative
27 style, and that the hedonism would be positively related to the diffuse-avoidant style and
28 negatively related to the normative style.
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35 **Summary of Objectives**

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37 In sum, our study was guided by two main objectives: First, we examined the factor
38 structure of the ISI items among a sample of Pakistani young adults. Second, we tested
39 associations of identity styles with identity commitment and value priorities, to ascertain how
40 these may be similar to or different from those observed in Western contexts.
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46 **Method**

47 **Participants and Procedure**

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49 Participants were 479 students (286 females [60%], 192 males [40%], 1 unspecified;
50 241 undergraduates [50%], 223 postgraduates [47%], 15 unspecified [3%]) from six
51 universities in Islamabad and Rawalpindi (Pakistan), recruited from classes or through
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3 printed advertisements. Islamabad is a metropolitan city and the capital of Pakistan, and
4 Rawalpindi is adjacent to Islamabad. We distributed paper copies of our questionnaire in
5 English, which was the language of instruction at both universities, to all students in the
6 sample. Participants were aged 18 to 25 years ($M = 21.86$; $SD = 1.89$). Regarding their
7 religious affiliations, 458 (96%) described themselves as Muslim, 5 (1%) as Christian, 4 (1%)
8 as non-believers, and 12 (2.5%) did not report their religion; of the 458 Muslim participants,
9 307 (67%) described themselves as Sunni, 38 (8%) as Shia, 18 (4%) as belonging to other
10 sects, and 79 (17%) as not belonging to a sect. Sixteen participant (3% of the sample) did not
11 report their sect membership.
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22 The research was approved from the research ethics committee from the first and
23 second authors' home university in the United Kingdom. Approvals from Vice
24 Chancellors/Directors at the respective Pakistani universities were obtained prior to data
25 collection. Participation was voluntary, and no compensation was provided. Participants were
26 briefed regarding the purpose of the study, were assured of anonymity, and a written consent
27 was obtained. Data were collected in classrooms, and all participants were informed that they
28 could withdraw at any point in the study. After the study, participants were debriefed and
29 given an opportunity to request a summary of findings.
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40 Measures

41 **2.1.1 Identity Style Inventory.** Identity styles were assessed using the ISI-5 (Berzonsky
42 et al., 2013), which includes 9 items for each of the three styles. Each ISI-5 item was rated using
43 a 5-point Likert scale, ranging from 1 (*Not at all like me*) to 5 (*Very much like me*). The ISI-5
44 assesses use of three identity styles including informational style ($\alpha = .69$; e.g., "*I handle*
45 *problems in my life by actively reflecting on them*"); normative style ($\alpha = .59$; e.g., "*I strive to*
46 *achieve the goals that my family and friends hold for me*"); and diffuse-avoidant style ($\alpha = .62$;
47 e.g., "*When personal problems arise, I try to delay acting as long as possible*").
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3 **2.1.2 Identity Commitment.** The commitment scale from the ISI-4 (Berzonsky et al.,
4 2010) was administered. Nine items ($\alpha = .69$; e.g., “I know basically what I believe and don’t
5 believe”) were responded to using the same 5-point Likert scale as the ISI-5.
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9 **2.1.3 Portrait Values Questionnaire (PVQ).** Participants completed the PVQ-21 (S.H.
10 Schwartz, 2007). Each PVQ item consists of two sentences describing the goals, aspirations and
11 wishes of a person of the same gender as the participant. For example, the statement “*Thinking*
12 *up new ideas and being creative is important to her(him). She(He) likes to do things in her(his)*
13 *own original way*” reflects self-direction, one component of openness to change. Respondents
14 rated each portrait using a six-point scale ranging from 1 (*Very much like me*) to 6 (*Not like me at*
15 *all*). We recoded all items so that higher numbers indicated stronger endorsement of the value in
16 question. The PVQ-21 includes two items measuring each of the component values – self-
17 direction, power, achievement, security, stimulation, conformity, tradition, benevolence, and
18 hedonism, and three items measuring universalism. A CFA with 10 value orientations provided a
19 satisfactory model fit ($\chi^2 = 431.701$, $df = 144$, CFI = .909, RMSEA = .065 [90% CI: .058, .072],
20 SRMR = .044). Before making observed scores for our analyses, we controlled for response
21 styles (e.g., choosing primarily extreme values) by computing each individual’s mean across all
22 PVQ items and subtracting this mean from the person’s ratings of each item (S. H. Schwartz,
23 2007). Ipsatized items were averaged to derive scores for each of the 10 values, and these scores
24 were then averaged as follows to measure the two bipolar dimensions: Scores for self-direction,
25 stimulation, tradition (reversed), conformity (reversed), and security (reversed) were combined
26 to measure *openness to change versus conservation* ($\alpha = .45$). Scores for universalism,
27 benevolence, achievement (reversed) and power (reversed) were combined to measure *self-*
28 *enhancement versus self-transcendence* ($\alpha = .46$). Note that because values theoretically follow a
29 circumplex structure, measures of the two bipolar dimensions are composite scores and their
30 reliabilities are expected to be low. As in previous research into identity styles and values
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(Berzonsky, Cieciuch, et al., 2011; Berzonsky & Papini, 2014), *hedonism* (2 items: $r = .09^*$) was analyzed separately.

Results

Confirmatory Factor Analyses

Scores on the ISI items were subjected to a series of Confirmatory Factor Analyses to test their structure in our Pakistani sample. Robust maximum likelihood estimation was used to adjust standard errors and fit indices for non-normality in the indicator variables (Satorra & Bentler, 1994). Several indices were used to assess model fit, including the Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). Recommended cutoffs for these indices are as follows: values of $RMSEA \leq .05$ (or $.08$) indicate good (or adequate) fit (Hu & Bentler, 1999); values of $SRMR \leq .05$ indicate a good fit, and values $\leq .10$ may be interpreted as adequate (Browne & Cudeck, 1993; Hu & Bentler, 1995; Schreiber, Nora, Stage, Barlow, & King, 2006); for CFI, values $\geq .95$ (or $.90$) indicate good (or adequate) fit (Bentler, 1990).

To test the ISI-5 measurement model, all items were allowed to load on their target factors, as specified by Berzonsky et al. (2013), and no cross-loadings or error covariances were permitted. Standardized factor loadings can be seen in Table 1. This model showed acceptable values of RMSEA and SRMR, but a very poor value of CFI: $\chi^2(321) = 735.221$, $CFI = .707$, $RMSEA = .052$ (90% CI: $.047, .057$), $SRMR = .064$.

Because these fit indices were not acceptable, we inspected the standardized loadings and modification indices to identify sources of misfit. All items loaded significantly ($p < .05$) on their target factors, but some standardized loadings were rather low (e.g., $\lambda = .134$ for item N9). When we inspected model modification indices, 26 out of 27 items showed at least one significant cross-loading or covariance, but many of these also were rather small (e.g., $\lambda = -.106$; $\psi = .095$). In the following description, because of our large sample size, we focus on

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3 effect sizes rather than on statistical significance. We conducted three iterative revisions of
4 the measurement model, each time using the following three criteria: (1) We deleted items
5 which failed to load at $\lambda > .316$ (i.e., 10% of variance) on their target factor. (2) We deleted
6 items where the modification indices indicated standardized loadings $> .224$ (i.e., 5% of
7 variance) on a non-target factor. (3) We allowed covariances between items within the same
8 factor where modification indices suggested standardized values $> .224$ (i.e., 5% of variance),
9 but we did not allow covariances between items that loaded on different factors. In total, we
10 thus removed 11 poorly performing items from the original scale and added one covariance.
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20 After three iterative revisions, no further problems were identified, and the model
21 showed an acceptable fit according to all indices: $\chi^2(100) = 161.033$, CFI = .912, RMSEA =
22 .036 (95% CI: .025, .046), SRMR = .040. Standardized loadings of the retained items and
23 reasons for deleting the excluded items are in Table 1. Deleting these poorly performing
24 items left only 7 information style items, 4 normative style items, and 5 diffuse-avoidance
25 items in our revised measure. Additionally, we tested gender invariance for both the full ISI-5
26 and for our empirically modified version. The revised measure showed stability of the model
27 across gender for factor scores $\Delta\chi^2(3) = 5.85$, $p = .119$, whereas, the factor structure of the
28 original measure was not consistent across gender $\Delta\chi^2(3) = 7.85$, $p = .050$. Therefore, the
29 revised measure suggested invariance of the factor structure across gender, providing further
30 support for deleting poorly performing items.
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44 Reliabilities for the shortened scales were quite low (informational $\alpha = .67$; normative
45 $\alpha = .54$, diffuse-avoidant $\alpha = .51$), and they are also worse than the reliabilities for the full
46 scale (α 's = .69, .59, .62, respectively). However, we believe there is a trade-off between
47 reliability (indicated by higher α 's in the original measure) and discriminant validity
48 (indicated by cleaner item loadings in the revised measure) in these results, as the higher
49 reliabilities in the full scale may be inflated by common method variance due to response
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3 styles, rather than shared substantive content of the items. Additionally, a weakness of
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5 Cronbach's alpha is that it is inflated by the number of items on the scale (Streiner, 2003).
6
7 We report subsequent analyses in parallel using both the original and revised measures.
8

9 **Concurrent Validity**

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11 Table 2 provides zero-order correlations among the identity styles, identity
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13 commitment and value orientations. Table 3 provides hierarchical regression analyses
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15 predicting identity commitment and values as a function of the three identity styles. The
16
17 regression analyses reflect the extent to which each identity style was uniquely related to
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19 commitment or value priorities, controlling for the other two styles. Following previous
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21 studies (Berzonsky, Ciecuch, et al., 2011; Berzonsky & Papini, 2014), gender (coded as a
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23 dummy variable: Male = 0, Female = 1) and age were entered as control variables on Step 1
24
25 of our regression analyses, and the three identity styles were entered on Step 2.
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29 **Identity styles and commitment.** Associations between identity styles and
30
31 commitment were largely, but not entirely, as expected. In both zero-order correlations and
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33 regression analyses, and with both original and revised measures, the informational style was
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35 positively related to commitment, whereas the diffuse-avoidant style was negatively related
36
37 to commitment. The normative style was only weakly (using the original ISI-5) or non-
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39 significantly (using the revised measure) related to commitment at the zero-order level and
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41 was a relatively weak but significant positive predictor of commitment in both sets of
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43 regression analyses. Thus, the association of the normative style with commitment was
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45 somewhat weaker than expected, but still detectable in our data.
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49 **Identity styles and value priorities.** Unexpectedly, the informational style was not
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51 associated with openness to change (vs. conservation) values at the zero-order level. This
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53 association reached significance in regression analyses using the original ISI-5, but not using
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55 the shortened version. Additionally, we found a small but consistent association between the
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3 informational style and self-transcendence (vs. self-enhancement) values.

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5 As expected, the normative style was consistently associated with conservation
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7 (versus openness to change) values and was negatively associated with hedonism. At the
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9 zero-order level, however, the association with hedonism reached significance only with the
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11 shortened version of the measure.
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14 Using the original ISI-5, diffuse-avoidance evidenced the expected positive
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16 relationship with hedonism both at the zero-order level and in regression analyses. These
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18 relationships were not significant using the shortened version, however. Additionally,
19
20 diffuse-avoidance was consistently associated with self-enhancement (vs. self-transcendence)
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22 values.
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25 Identity styles accounted for between 3% and 8% of variance in value orientations,
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27 with both original and revised versions of the ISI-5 performing similarly in this regard.
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29 **Discussion**

30 **Factor Structure of Identity Styles in the Pakistani Context**

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33 Results of our Confirmatory Factor Analysis largely supported the three-factor
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35 structure of identity styles proposed by Berzonsky (1989, 1990, 1992b; Berzonsky et. al.
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37 2013), in a very different cultural context from that in which his model was originally
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39 developed. However, our confirmatory factor analytic results indicated that numerous poorly
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41 performing items should be deleted, especially from the normative and diffuse-avoidant style
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43 scales. Only the informational style subscale remained relatively intact. The previous
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45 validation studies mentioned above did not recommend deletion of items, perhaps because
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47 the authors used item parceling, which does not allow for identification of poorly performing
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49 items. A strength of the present research is therefore that our item-level analysis allowed us to
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51 identify items that did not work well in the Pakistani context.
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55 The deletion of items from the identity style framework in general, and especially
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3 from the normative and diffuse-avoidant orientations, highlights the need to consider whether
4 or not these identity styles have a comparable meaning across cultures. As we noted earlier,
5 Pakistan has been characterized as a collectivist and “tight” culture with rigid social norms
6 (see, e.g., Gelfand et al. 2011; Tariq, 2012), especially compared to the individualist and
7 “loose” cultures where the identity styles model was originally developed. The deletion of
8 more than half of the items from the ISI-5 normative orientation subscale leads us to
9 speculate that these items might not adequately represent the ways in which normative
10 orientation works in the Pakistani context. Notably, the two lowest-loading items from the
11 original scale (items N8 and N9; see Table 1) refer to a lack of questioning of one’s *personal*
12 values or beliefs and make no reference to sources of normative influence—indeed, item N8
13 even mentions *disregarding* the influence of others. The four retained items (N1 to N4) also
14 focus mainly on a closed-minded cognitive style. Items N1 and N3 explicitly mention sources
15 of normative influence (“what close friends or relatives expect from me”; “the values I was
16 brought up with”), whereas items N2 and N4 refer only to “firm” or “fixed” beliefs and
17 values. Although not referring explicitly to others, these items may have been interpreted by
18 participants as referring to religious values, which are a major source of normative social
19 influence in Pakistani society (Naeem, Gobbi, Ayub, & Kingdon, 2009).

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21
22 Thus, the four items (items N1- N4) that were retained seem to provide greater face
23 validity for measuring normative orientation compared to those that were dropped. Yet these
24 four items still emphasize the use of norms in an automatic and unquestioning manner, which
25 is consistent with Berzonsky’s (1989, 2011) definition of the construct, but at odds with the
26 possibility that individuals may use normative influences more flexibly and strategically in
27 their decision making (Hassan et al., 2017). In any case, the substantial loss of items from the
28 normative style category raises the possibility that some aspects of the use of norms in
29 identity formation in a non-Western society such as Pakistan are not addressed through these
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3 items—and that they perhaps may not be captured adequately by the conceptualization of
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5 normative style in Berzonsky's (1989) model.
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7 We also lost 4 items from the diffuse-avoidance subscale. Closer inspection suggests
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9 that the 5 retained items tend to emphasize a relatively passive approach of “going with the
10
11 flow,” rather than engaging actively in decision making or planning. In contrast, the excluded
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13 items refer to a state of diffusion, where the individual is lacking a clear sense of identity
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15 (D8), mentioned challenging situations (D7, D9), or did implicate the individual in decision
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17 making (D6; see Table 1). Berzonsky and Ferrari (2009) found that diffuse-avoidance should
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19 be understood as a strategic, motivated way to avoid having to make commitments, rather
20
21 than a quasi-random state of “self-confusion”. This sense of avoidance as a strategy, albeit
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23 not acknowledged as such, is somewhat more apparent in the five items that were retained
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25 (D1 – D5) than in most of those that were deleted (D6 – D9).
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29 Finally, the two items that were dropped from the informational subscale (I8, I9) both
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31 referred to “talking to others” as a source of information. It is interesting that these two items
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33 did not evidence substantial potential cross-loadings on the normative style factor, reinforcing
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35 our interpretation that the latter is capturing a closed-minded cognitive style, rather than
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37 attentiveness to social norms or expectations per se.
38

39 **Concurrent Validity with Commitment and Value Orientations**

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41 Although reliabilities of the three factors were poor, tests of concurrent validity
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43 revealed a pattern of associations with identity commitment and value orientations that was
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45 broadly—albeit not perfectly—consistent with previous Western studies. We found mostly
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47 positive associations of both informational and normative styles with identity commitment
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49 and a negative association between the diffuse-avoidant style and commitment. Although the
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51 associations with commitment were somewhat weaker for the normative style than for the
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53 other two styles, this pattern of findings largely replicates what has been found in previous
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3 studies (e.g., Berzonsky, 2003, 2004; Berzonsky et al, 2013; Crocetti & Shokri, 2010;
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5 Kerpelman et al, 2012; Vleioras & Bosma, 2005; Zimmermann et al., 2012), giving credence
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7 to the utility of the ISI-5 for measuring these constructs in a Pakistani cultural context.
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10 Moreover, our results mostly supported the expected pattern of associations between
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12 identity styles and values, as revealed in previous Western findings (Berzonsky, Cieciuch, et
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14 al., 2011; Berzonsky & Papini, 2014) in the Pakistani context. As expected, individuals high
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16 in use of the normative style endorsed values emphasizing conservation (vs. openness to
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18 change) and were less likely to endorse hedonism values, whereas those high in use of the
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20 diffuse-avoidant style were more likely to endorse hedonism values. Unexpectedly, the
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22 informational style evidenced little association with openness to change (vs. conservation)
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24 values; however, we did replicate the previously observed association of this style with self-
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26 transcendence (vs. self-enhancement) values. Thus, using both the original and shortened
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28 scales and in a new cultural context, we largely replicated the associations between identity
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30 styles and value orientations that had been observed in Western contexts. These findings
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32 highlight the important role that identity styles might play in relation to value orientations,
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34 not only in Western cultures, and suggests that the ISI identity style subscales carry
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36 somewhat comparable—but not identical—meanings in the Pakistani context to their
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38 meanings in the USA (Berzonsky & Papini, 2014) and Poland (Berzonsky, Cieciuch, et al.,
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40 2011). However, we acknowledge some limitations and avenues for future research in the
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42 next section.
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45 46 **Limitations and Future Directions**

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48 The present findings should be considered in light of some important limitations.
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50 First, participants were all university students from relatively high socio-economic
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52 backgrounds living in two large cities. Our results may not generalize to less affluent
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54 members of Pakistani society, nor to those living in rural areas. Relatedly, there has been
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3 much criticism that social scientific research with student participants presents a biased view
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5 of the wider population (e.g., Peterson, 2001; Sears, 1986). Indeed, only 5% of young people
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7 aged 17-23 in Pakistan attend university (Aaj News report, 2011), and our findings may not
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9 generalize beyond this privileged group. Moreover, our participants attended universities
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11 where English was the language of instruction. Targeting participants with less education and
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13 lower socio-economic status would require an Urdu version of the ISI. A more representative
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15 sample could have provided a broader picture of the operation of identity styles in Pakistan.
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17 Nonetheless, as the first systematic evaluation of the item-level factor structure and correlates
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19 of the ISI in a non-Western culture, our study provides an important step towards greater
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21 generalizability (Henrich, Heine, & Norenzayan, 2010).
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24 Both the ISI and the PVQ-21 are self-reported measures, and thus potentially
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26 vulnerable to social desirability, false or invalid responding, and response sets (Rosenthal &
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28 Rosnow, 1991). As Berzonsky et al. (2013) have pointed out, the ISI measures perceived
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30 styles rather than actual processing of identity related information. Future research in this
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32 area should triangulate ISI scores with performance-based observations of decision-making,
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34 so as to avoid the limitations associated with self-reports.
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37 Considerable caution should be used when importing instruments developed within
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39 Western cultural contexts into new cultural contexts (i.e., an “imposed etic” approach: Berry,
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41 1989), and instruments should be evaluated to ascertain their cultural relevance before they
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43 are used in a new context. There may be subtle differences between the types of items
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45 constructed and validated in the United States and other Western contexts, and those that
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47 might be more suitable for a Pakistani sample. The loss of numerous items from the original
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49 scale, together with the poor internal consistencies observed in both original and reduced
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51 measures, suggests a need to develop indigenous understandings of identity formation in
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53 Pakistan, as well as in other countries with “tight” cultural systems (i.e., an “emic” approach:
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Berry, 1989), and thus generate new items that are more culturally consonant with the population being investigated. In particular, there appears to be a need to examine indigenous manifestations of the normative identity style among Pakistani youth. It is not well understood how the role of norms in identity formation may differ between Western and non-Western contexts. Hence, the current research must be complemented by in-depth qualitative research exploring the processes that Pakistani young adults employ while handling identity related issues and forming their life decisions (e.g., Hassan et al., 2017).

Concluding Remarks

Identity formation does not occur in a vacuum, but rather always takes place within a social and cultural context (Berzonsky, Cieciuch, et al. 2011; Hogg, Terry, & White, 1995). Accordingly, the present study provides information regarding how identity styles operate in a non-Western context, with different ecological and historical challenges compared to those that are typical of Western countries. Our results supported the three-factor structure of informational, normative, and diffuse-avoidant styles, and largely replicated the relationships among identity styles, identity commitment, and values previously found in other countries (Berzonsky, Cieciuch, et al., 2011; Berzonsky & Papini, 2014). However, the poor performance of a substantial proportion of individual ISI items in our study suggests that this measure may not fully capture the complexities of identity formation in this cultural context, and highlights the need to incorporate an indigenous perspective in future theorizing and research into identity formation. We hope that our study will inspire future work in this direction.

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Table 1: *Factor loadings of the ISI-5 and items retained after CFA*

ISI items	Standardized parameters				Reasons for deletion	
	ISI-5	R1	R2	R3		
Informational Identity Style item loadings						
11 (34)	When making important decisions, I like to have as much information as possible.	.569	.571	.568	.566	-
12 (18)	When facing a life decision, I try to analyse the situation in order to understand it.	.531	.554	.566	.564	-
13 (26)	When making important decisions, I like to spend time thinking about my options.	.525	.539	.543	.545	-
14 (10)	When facing a life decision, I take into account different points of view before making a choice.	.439	.441	.434	.435	-
15 (30)	I handle problems in my life by actively reflecting on them.	.437	.428	.423	.425	-
16 (46)	It is important for me to obtain and evaluate information from a variety of sources before I make important life decisions.	.398	.411	.407	.406	-
17 (37)	I periodically think about and examine the logical consistency between my values and life goals.	.395	.396	.398	.399	-
18 (6)	Talking to others helps me explore my personal beliefs.	.358	.307	-	-	low loading
19 (14)	I spend a lot of time reading or talking to others trying to develop a set of values that makes sense to me.	.340	.283	-	-	low loading

ISI items	Standardized parameters				Reasons for deletion	
	ISI-5	R1	R2	R3		
Normative Identity Style item loadings						
N1 (35)	When I make a decision about my future, I automatically follow what close friends or relatives expect from me.	.601	.641	.776	.786	-
N2 (19)	I think it is better to adopt a firm set of beliefs than to be open-minded.	.363	.354	.527	.538	-
N3 (3)	I automatically adopt and follow the values I was brought up with.	.374	.374	.345	.339	-
N4 (27)	I think it's better to hold on to fixed values rather than to consider alternative value systems.	.348	.401	.369	.364	-
N5 (15)	I never question what I want to do with my life because I tend to follow what important people expect me to do.	.452	-	-	-	cross-loading (diffuse-avoidance: .264)
N6 (31)	I prefer to deal with situations in which I can rely on social norms and standards.	.419	-	-	-	cross-loadings (information: .375; diffuse-avoidance: -.255)
N7 (7)	I strive to achieve the goals that my family and friends hold for me.	.373	-	-	-	cross-loading (diffuse-avoidance: -.255)
N8 (38)	When others say something that challenges my personal values or beliefs, I automatically disregard what they have to say.	.247	-	-	-	low loading
N9 (11)	I have always known what I believe and don't believe; I never really have doubts about my beliefs.	.134*	-	-	-	low loading and cross-loadings (information: .336; diffuse-avoidance: -.390)

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ISI items	Standardized parameters				Reasons for deletion
	ISI-5	R1	R2	R3	
Diffuse-Avoidant Style item loadings					
D1 (32) I try to avoid personal situations that require me to think a lot and deal with them on my own.	.448	.435	.422	.425	-
D2 (4) I'm not sure where I'm heading in my life; I guess things will work themselves out.	.437	.449	.474	.455	-
D3 (28) I try not to think about or deal with problems as long as I can.	.428	.455	.418	.399	-
D4 (42) My life plans tend to change whenever I talk to different people.	.406	.355	.382	.404	-
D5 (16) I am not really thinking about my future now, it is still a long way off.	.357	.390	.425	.423	-
D6 (8) It doesn't pay to worry about values in advance; I decide things as they happen.	.355	.335	.304	-	low loading
D7 (20) When I have to make a decision, I try to wait as long as possible in order to see what will happen.	.384	.353	-	-	cross-loading of .234 on normative style
D8 (45) Who I am changes from situation to situation.	.331	.226	-	-	low loading
D9 (48) When personal problems arise, I try to delay acting as long as possible.	.404	-	-	-	cross-loading of -.240 on normative style

Added error covariances

ISI items	Standardized parameters				Reasons for deletion
	ISI-5	R1	R2	R3	
I8 with I9	-	.282	-	-	both items removed
D4 with D8	-	.247	-	-	one item removed
N1 with N2	-	-	-.512*	-.555*	-

Note. R3 is the final model. All parameters are statistically significant at $p < .001$ except * $p < .05$

For Peer Review Only

Table 2. *Correlations between identity styles, identity commitment, and value orientations.*

		1	2	3	4	5	6	7
	M (SD)	Correlations using original version of ISI-5						
1	Informational style	3.784 (.651)	-					
2	Normative style	3.485 (.637)	.347**	-				
3	Diffuse-Avoidant style	2.939 (.717)	-.017	.305**	-			
4	Identity Commitment	3.778 (.699)	.422**	.159**	-.405**	-		
5	Openness vs. Conservation values	0.027(.45)	.029	-.275**	-.086	.055	-	
6	Self-Transcendence vs. Self-Enhancement values	0.162 (.484)	.112*	-.036	-.211**	.229**	-.143**	-
7	Hedonism values	0.470 (.953)	-.034	-.086	.106*	-.107*	.210**	-.098* -
	M (SD)	Correlations using revised version of ISI-5						
1	Informational style	3.848(.691)	-					
2	Normative style	3.513(.843)	.167***	-				
3	Diffuse-Avoidant style	2.798 (.847)	-.140**	.295**	-			
4	Identity Commitment	3.778 (.700)	.436**	.040	-.442**	-		
5	Openness vs Conservation values	0.027 (.458)	.019	-.261**	-.071*	.055	-	
6	Self-Transcendence vs. Self-Enhancement values	0.162 (.484)	.125**	-.049	-.222**	.229***	-.143**	-
7	Hedonism values	0.470 (.953)	-.063	-.127**	.073	-.107*	.210**	-.098* -

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 3. *Hierarchical regression of identity commitment and value priorities on identity styles*

Predictor	Dependent Measure							
	Commitment		Openness to Change		Self-Transcendence vs.		Hedonism	
			vs. Conservation		Self-Enhancement			
	Step 1 β	Step 2 β	Step 1 β	Step 2 β	Step 1 β	Step 2 β	Step 1 β	Step 2 β
Analyses using original version of ISI-5								
Sex (female)	.008	-.023	-.153**	-.119**	.065	.069	-.130**	-.119*
Age	.021	-.040	.004	.014	.015	-.004	.063	.078
Informational style	-	.345***	-	.130**	-	.110*	-	.014
Normative style	-	.188***	-	-.308***	-	-.023	-	-.122**
Diffuse-avoidant style	-	-.456***	-	.021	-	-.209***	-	.156**
R^2	.000	.357	.024	.103	.004	.062	.023	.050
ΔR^2	-	.356	-	.079	-	.058	-	.027
R^2_{adj}	-.004	.350	.019	.093	.000	.052	.019	.040

Analyses using revised version of ISI-5

Sex (female)	.008	-.020	-.153**	-.122**	.065	.068	-.130**	-.113*
Age	.021	-.045	.004	.006	.015	-.008	.063	.077
Informational style	-	.356***	-	.067	-	.091†	-	-.017
Normative style	-	.111**	-	-.267***	-	-.017	-	-.144**
Diffuse-avoidant style	-	-.429***	-	.028	-	-.213***	-	.127**
R^2	.000	.347	.024	.088	.004	.064	.023	.051
ΔR^2	-	.346	-	.064	-	.060	-	.027
R^2_{adj}	-.004	.340	.019	.078	.000	.054	.019	.040

*** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .06$