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Viewing Loneliness from an Interpersonal Acceptance-Rejection Perspective: Pilot Testing a New Loneliness Measure and Testing the Relation of Loneliness to Adults' Remembrances of Parental Acceptance and Rejection in Childhood

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Viewing Loneliness from an Interpersonal Acceptance-Rejection
Perspective: Pilot Testing a New Loneliness Measure and Testing the
Relation of Loneliness to Adults' Remembrances of Parental Acceptance
and Rejection in Childhood

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Viewing Loneliness from an Interpersonal Acceptance-Rejection Perspective: Pilot Testing a New Loneliness Measure and Testing the Relation of Loneliness to Adults' Remembrances of Parental Acceptance and Rejection in Childhood

Loneliness is a common phenomenon (e.g., Cutrona, 1982; see Coplan & Bowker, 2014, for a review) that is an important topic for behavioral science research and practice for a number of reasons. One reason is that it is a painful and distressing experience (Weiss, 1973). Thus, the well-being of individuals can be improved and distress can be reduced by reducing loneliness. As noted by Baumeister and Leary (1995), positive relationships with others and connectedness to broader communities are fundamental to individuals' health and well-being (see also Rohner, 2016a). Loneliness has been described previously in such ways as a "subjective distressing and unpleasant state in which individuals perceive deficiencies in their social world" (Larose, Guay, and Boivin, 2002, p. 684), and as "a sad or aching sense of isolation" (Parkhurst & Hopmeyer, 1999, p. 58). Because of the fundamental nature of connectedness, these feelings can be very strong and centrally implicated in one's mental health more broadly. Loneliness has been shown to be strongly associated with depression (e.g., Wei, Russell, & Zakalik, 2005), for example.

Beyond the individual level, the prevalence and severity of loneliness—and the breakdown in social interactions that it reflects—is also related to overall societal well-being more broadly (e.g., Beck & Malley, 1998; see Asher & Weeks, 2014, for a review). Social alienation has been shown to contribute to drug and alcohol abuse, violence, gang membership, and suicidality (Beck & Malley, 1998), as well as to physical illness (Cacioppo & Patrick, 2008). Altogether, aggregate levels of loneliness severity and prevalence could be taken as an indicator of the health of a society. In fact, as Asher and Weeks (2014) noted, promoting social integration

is one of three goals of the United Nations Department of Economic and Social Affairs (2007), alongside creating jobs and reducing poverty.

Loneliness in America

A number of researchers (e.g., Cacioppo & Patrick, 2008; Rokach & Sha'Ked, 2013) have recently argued that American culture is particularly conducive to loneliness. The main reasons for this are individualism and the high values placed on self-fulfillment and competitiveness, as these values contradict ideas of interpersonal interdependence as a normal, healthy, and desired state (Rokach & Sha'Ked, 2013).

As noted by Perlman and Peplau (1982) in their review of theoretical approaches to loneliness: from a sociological perspective, America is also “other-directed” (Riesman, Glazer, & Denney, 1961). While a denial of human interdependence as a healthy and desired state of being is at the core of individualism (Slater, 1976), other-directedness—according to Riesman and colleagues (1961)—refers to an especially high concern with peer popularity. From their own cognitive approach to loneliness, Peplau and Perlman (1979) noted that loneliness occurs when one perceives a discrepancy between his or her desired and achieved levels of social interaction. From this perspective, the over-concern with peer popularity in America should further exacerbate the frequency and severity of loneliness (e.g., Peplau, Miceli, & Morasch, 1982).

Loneliness in Behavioral Science Research and Practice

Despite the prevalence and importance of loneliness as a mental health variable, it has received relatively little empirical attention over the years, although it has received increased attention since the 1970s (see Weiss, 1987, for a review). Further, certain specific loneliness causes and situations, such as the experience of being lonely despite being actively involved in a

romantic relationship, have received much less attention than others (Rokach & Sha'Ked, 2013). According to Rokach and Sha'Ked (2013), one reason that loneliness has received relatively little clinical and research attention is the incompatibility of individualism and related cultural values with ideas of interdependence, as noted above. These authors noted further that this incompatibility of ideas is made even greater once individuals become married. That is, because of cultural values placed on marriage and family-making as the culmination of one's pursuit of self-fulfillment, loneliness among married and intimately involved individuals, in particular, is likely to go unnoticed (Rokach & Sha'Ked, 2013). However, Rokach and Sha'Ked (2013) have shown that many clients in couple therapy struggle with significant loneliness, and that it plays a central role in their individual and couple well-being more broadly.

Building again on Peplau and Perlman's (1979) perspective on loneliness as arising from a discrepancy between desired and achieved levels of social interaction, such a discrepancy can take a variety of forms (e.g., Rubenstein & Shaver, 1982). For example, both relationship quantity and/or relationship quality (as with clients in couple therapy) can be deficient (Rokach & Sha'Ked, 2013; Rubenstein & Shaver, 1982). Also, loneliness can arise from a variety of causes, such as from personality characteristics and/or from environmental factors (e.g., Weiss, 1973; see Hojat, 1987, for a review). Altogether, the multitude of forms that loneliness can take—and the degree to which it is widespread in some form—have not been adequately acknowledged in the behavioral sciences.

A separate but related reason that loneliness has received relatively little empirical attention is the centrality of the self instead of the community that characterizes psychology, combined with the negative view of mental health symptomology (Rokach & Sha'Ked, 2013). As Rokach and Sha'Ked (2013) explained, the combination of these two factors creates a very

stigmatized view of lonely individuals, suggesting that loneliness is the fault of individual character blemishes that make them undesirable as social partners, and so is indicative of such blemishes. For example, as noted by Coplan and Bowker (2014), in the original *Diagnostic and Statistical Manual of Mental Disorders (DSM-I*; American Psychiatric Association [APA], 1952), the failure to relate effectively to others was seen as a diagnostic criterion for a number of personality, psychoneurotic, or psychotic disorders (e.g., schizoid personality disorder). In this way, to an extent, loneliness may have been seen throughout recent history as embarrassing, unworthy of study, or non-pervasive (i.e., only prevalent and severe among mentally ill individuals), further reducing empirical attention to it (Rokach & Sha'Ked, 2013).

Theoretical Approaches to Loneliness

In their review of theoretical approaches to loneliness, Perlman and Peplau (1982) outlined eight inter-related but distinct approaches. These included psychodynamic (e.g., Fromm-Reichmann, 1959); general systems (e.g., Flanders, 1982); phenomenological (e.g., Rogers, 1961); and existential (e.g., Moustakas, 1961) approaches. Also included were sociological (e.g., Riesman, Glazer, & Denney, 1961) and interactionist (e.g., Weiss, 1973) approaches, the latter of which emphasizes the interaction of both the roles of individuals and of societies in producing loneliness (Perlman & Peplau, 1982). Finally, they discussed cognitive (e.g., Peplau et al., 1982) and privacy approaches (e.g., Derlega & Margulis, 1982), the latter of which involves too much—rather than too little—social contact, causing one's interpersonal relationships to lack the privacy necessary for honest communication (Perlman & Peplau, 1982). In more recent years, a social neuroscience perspective could also be added to this list (e.g., Cacioppo & Patrick, 2008).

Peplau and Perlman (1982) also noted that despite the number of theoretical views of loneliness, most could be reduced to a few common themes. For example, most definitions of loneliness across various perspectives have emphasized that (a) it results from relationship deficiencies, (b) it is a subjective experience, and (c) it is unpleasant and distressing (Peplau & Perlman, 1982). Finally, Peplau and Perlman (1982) noted that the various perspectives outlined above fit more broadly into perspectives that emphasize emotional needs for intimacy (e.g., Fromm-Reichmann, 1959; Weiss, 1973), or cognitive processes moderating the links between social interactions and loneliness (e.g., Peplau, Miceli, & Morasch, 1982).

Loneliness and Interpersonal Acceptance-Rejection Theory

The present research is based on interpersonal acceptance-rejection theory (IPARTheory; see Rohner, 2016a, for a review). Among the theoretical perspectives outlined above, the perspective on loneliness taken in IPARTheory is most closely related to the work of Weiss (1973). Weiss's (1973) work on loneliness, in turn, is based on Bowlby's (1969/1982, 1973, 1980) attachment theory, and also grounded in sociology and an interactionist perspective as noted above (Perlman & Peplau, 1982).

Also, among recent work on loneliness, the work that is most closely aligned with current IPARTheory work comes from the attachment theory perspective (Bowlby, 1969/1982, 1973, 1980; Mikulincer & Shaver, 2007; see Mikulincer & Shaver, 2014, for a review). More broadly, IPARTheory fits with an emphasis on emotional needs for intimacy, although cognitive moderators are also considered important in the theory (Rohner, 2016a). Finally, as a cross-cultural theory, IPARTheory also shares characteristics in common with a bio-ecological perspective (e.g., Bronfenbrenner, 1979).

IPARTheory aims to predict and explain major consequences and other correlates of interpersonal acceptance and rejection worldwide, especially parental acceptance and rejection (Rohner, 2016a). Specifically, the theory attempts to answer (a) whether children panculturally respond in the same way to the perceived experience of parental and interpersonal acceptance and rejection; (b) to what extent these effects extend into adulthood; (c) what factors account for variations in resilience when faced with interpersonal rejection; and (d) what factors account for variations in acceptance and rejection behaviors, and what effects aggregate levels of acceptance and rejection have on overall societies and their members (Rohner, 2016a).

The present research draws from IPARTheory evidence concerning the first two of these questions. According to IPARTheory research, the experiences of parental and interpersonal acceptance and rejection are panculturally perceived in the same way by children and by adults, existing in the form of four classes of behavior (Rohner, 2004). According to Rohner (2004), these include four continua, and overall acceptance and rejection can exist as any combination of them. They are (a) warmth/affection—or its opposite, coldness/lack of affection; (b) hostility/aggression; (c) indifference/neglect; and/or (d) undifferentiated rejection (Rohner, 2004). Undifferentiated rejection refers to the perceived experience of not being cared about, despite a lack of clear behavioral indicators of parental or interpersonal aggression, neglect, and/or lack of affection (see Rohner, 2016a). Taken together, overall acceptance and rejection forms the warmth dimension of parenting (cf., behavioral control; see Rohner, 2016a, for a review).

IPARTheory evidence also indicates that children and adults panculturally tend to respond in the same ways to experienced parental and interpersonal acceptance and rejection (Khaleque & Rohner, 2002; Rohner & Khaleque, 2010). These responses in their negative forms

include (a) dependence or defensive independence, depending on the form, frequency, and severity of rejection; (b) hostility and aggression, including physical, verbal, and passive aggression, and problems with the management of hostility and aggression; (c) negative self-esteem; (d) negative self-adequacy; (e) emotional unresponsiveness; (f) emotional instability; and (g) negative worldview (e.g., Rohner & Khaleque, 2010). These responses are all defined as personality characteristics in IPARTheory—in the sense that they are more or less stable sets of predispositions to respond and ways of responding across various contexts—and they are expected in the theory to extend relatively unchanged into adulthood once established (Rohner, 2016a).

Purpose of the Present Research

In light of all this, the perceived experience of parental acceptance and rejection as defined in IPARTheory should be strongly implicated in explaining variations in adults' current loneliness. However, loneliness has not been investigated previously from the perspective of IPARTheory. As current measures of loneliness do not necessarily capture the specific phenomenon of interest to scholars studying interpersonal and parental acceptance and rejection, I first developed an operational definition of loneliness based on the principles of IPARTheory, and developed and pilot tested a loneliness measure (Study 1). Next, I tested the extent to which adults' remembrances of experienced parental (maternal and paternal) acceptance and rejection in childhood predicted their current self-reported loneliness, and the extent to which these associations were mediated by the adults' current self-reported psychological adjustment (Study 2).

Study 1

The concepts of solitude and loneliness have been explored in psychology for years from multiple theoretical perspectives (see Coplan & Bowker, 2014, for a review), but interest in these

concepts particularly burgeoned in the 1970s (Weiss, 1987). Two major contributions to this burgeoning interest were Weiss's (1973) seminal book, *Loneliness: The Experience of Emotional and Social Isolation*, and Russell, Peplau, and Ferguson's (1978) development of the University of California: Los Angeles Loneliness Scale (UCLALS).

One aspect of Weiss's (1973) work that was germinal was that he connected the concept of loneliness to Bowlby's (1969/1982, 1973, 1980) attachment theory, defining loneliness in relation to attachment figure unavailability and/or non-responsiveness. Another germinal aspect of Weiss's (1973) work was that he differentiated loneliness into two distinct experiences (i.e., types). According to Weiss (1987), the loneliness of emotional isolation (i.e., emotional loneliness)—defined as a subjective state that indicates unsatisfied needs for proximity, love, and care due to attachment figure unavailability and non-responsiveness—is a type of loneliness that involves feelings of anxiety and tension. In contrast, the loneliness of social isolation (i.e., social loneliness)—defined as a subjective state that indicates unsatisfied needs for a broader group of contacts or an engaging social network—is a different type of loneliness that involves feelings of boredom and irritability (Weiss, 1987). In this way, emotional loneliness and social loneliness differ both in their causes and in their symptoms.

Around the same time that Weiss published *Loneliness: The Experience of Emotional and Social Isolation*, the UCLALS was created and was subsequently demonstrated to be successful as a measure of loneliness in a general (i.e., single type) sense (Russell, 1982). In other words, the measure is based on a concept of loneliness as an experience involving common themes regardless of its cause. The measure was created in this way in order to be useful for studying a broad spectrum of individuals (Russell, 1982).

Other researchers at the time also sought to develop alternative measures of loneliness designed to capture distinct experiences or types. Principal among these is De Jong Gierveld (1978), whose instrument consists of two subscales designed to assess Weiss's (1973) emotional and social loneliness. However, the UCLALS remained the predominant measure of loneliness used by researchers (Russell, 1996). This led to an accumulating body of evidence largely regarding loneliness in a general sense (but not in a sense of systematic variations in symptoms depending on its cause). This is true despite the fact that the UCLALS was developed to be general for reasons of utility, rather than for conceptual reasons (Russell, 1982). This begs the question of whether loneliness is—in fact—best conceptualized as unidimensional in nature.

The Dimensionality of Loneliness

One method that Weiss (1987) used to study types of loneliness was via qualitative investigations with college students, wherein he described two scenarios and asked the students how they felt in response. One scenario was designed to illustrate emotional loneliness (e.g., “You have no one to call, no one to talk to. There is no one sharing your life, no one at all...If you were to go out, you would still be alone”; p.7). And the other scenario was designed to illustrate social loneliness (e.g., “You are with someone with whom you are sharing your life, someone you are married to or are living with. The two of you are in a part of the country that is new and strange to you...The only people you have to talk to are each other”; p. 12).

Students reported different feelings in response to these different scenarios (Weiss, 1987). In response to the emotional loneliness scenario, they reported feeling tense, anxious, trapped, or sorry for themselves. And in response to the social loneliness scenario, they reported feeling angry with their partner, irritable, aimless, or bored and restless. However, Weiss (1987) also noted that in contrast, Russell, Cutrona, Rose, & Yurko (1984) reported anxiety to be

associated with social loneliness, whereas emotional loneliness was associated with depression, rather than arousing feelings (e.g., feeling tense or trapped).

The general consensus at the time regarding whether or not there are distinct types of loneliness was that there was a lack of clear conceptualization and evidence supporting the existence of distinct types (e.g., Perlman, 1987; Russell, 1982). For example, Weiss (1987) re-interpreted his original concept of social loneliness “to be considered a syndrome rather than a logical construct, and to be identified rather than defined” (p. 12). In contrast, he maintained that emotional loneliness is more readily defined as a construct, due to the way it parallels the experience of separation distress in early childhood (Weiss, 1987). Other examples of conceptual advances in the study of loneliness include the clarification that it can either be due to low relationship quantity or to low relationship quality (e.g., Rubenstein & Shaver, 1982), and that it can either be reactive and transient in nature, or deeply rooted in the personality and chronic in nature (see Hojat, 1987, for a review). However, it remains unclear whether loneliness due to these different causes involves the same or different symptoms and exists as one or multiple types overall. For example, Russell (1996) suggests that the UCLALS (Version 3) sufficiently captures loneliness for a wide range of individuals in one factor, but De Jong Gierveld and Van Tilburg (2010) suggest that the De Jong Gierveld Loneliness Scale (De Jong Gierveld LS; De Jong Gierveld & Van Tilburg, 2006) is a valid measure of both emotional loneliness and social loneliness for a wide range of individuals.

IPARTheory Perspective on the Dimensionality of Loneliness

From the perspective of IPARTheory, loneliness is viewed as involving the same symptoms regardless of its cause. This is because the theory begins with the assumption that humans have a felt need for positive response from significant (i.e., salient) others, including

parents in childhood and additional significant others in adulthood (Rohner, 2016a). From this conceptual viewpoint, for example, both the experience of being rejected by one's significant other in adulthood (low relationship quality) and the experience of not having a significant other (low relationship quantity) are likely to be perceived as interpersonal rejection. In regards to Weiss's (1987) qualitative investigation of emotional and social loneliness scenarios described previously, he further elaborated on the social loneliness scenario that respondents' self-reported symptomology (e.g., feeling angry with their partner, irritable, aimless, or bored and restless) partly stemmed from feeling as though their partner had trapped them into their isolation. Examining this from the perspective of IPARTheory, it is possible that the students' self-reported loneliness symptomology in the social loneliness scenario may have primarily stemmed from the experience of being rejected by their partner, rather than from a deficit in social relations outside of their relationship with their partner.

IPARTheory evidence (e.g., Rohner & Khaleque, 2010) suggests that children and adults everywhere tend to respond in the same ways to perceived experiences of interpersonal rejection, although the intensity of responses varies. Other individuals who have been shown to contribute to youth's psychological adjustment via acceptance and rejection include teachers, for example (Ali, Khaleque, & Rohner, 2015). Thus, loneliness should vary primarily in its experienced intensity, rather than in its symptoms, based on whether it is due to rejection by a significant other or the lack of a significant other. Likewise, conceptualizing that the cause of loneliness is interpersonal (especially parental) rejection—and that the relation is mediated by personality characteristics—also suggests that loneliness should vary primarily in its intensity (rather than its symptomology) based on whether it is deeply rooted in the personality and chronic, or reactive and transient in nature.

Weiss's (1973) original concept of social loneliness as a different type of loneliness than emotional loneliness may be related to a broader shift in the conceptualization of life span attachment bonds over the development of attachment theory (e.g., Ainsworth, 1989; see Cassidy, 2008; Mikulincer & Shaver, 2007, for reviews). This involved a shift towards a more hierarchical view of parent-child attachment relationships within a broader network of other attachment and non-attachment relationships (Ainsworth, 1989). Weiss's (1987) rationale for considering social loneliness to be different from emotional loneliness was largely based on the idea that emotional loneliness involved the triggering of the attachment behavioral system, and was unique to attachment figures in that way (i.e., different relationships involve different behavioral systems). For example, Weiss (1987) suggested:

In the loneliness of emotional isolation we can find the precursor state of separation distress in young children. We know how to trigger this state with some assurance. Indeed, Ainsworth's strange situation does just this (Ainsworth et al., 1978). Perhaps the distress of children separated from friends represents the same sort of precursor state for the loneliness of social isolation. But that distress seems to me less automatic in its operation, and the distress syndrome not so evidently the same from person to person and over time. (p. 13)

In contrast, in IPARTheory (Rohner, 2016a) currently, attachment figures (e.g., parents in childhood, romantic partners in adulthood) are postulated to have an unparalleled influence on individuals' life span psychological development compared to other significant others (e.g., friends). However, the specific constellation of psychological adjustment factors resulting from the quality of these relationships is not conceptualized to be qualitatively different depending on whether or not the relationship is with an attachment figure.

Similarities and Differences Between Loneliness and Other Constructs

Additional work on loneliness also clarifies how it is conceptually distinct from other closely related constructs such as isolation, depression, and positive solitude. For example, as noted above, Peplau and Perlman (1979) highlighted the role that cognitive processes play in modulating the intensity of loneliness that results from isolation. Complementary evidence from attachment-theoretical studies of loneliness shows that anxious attachment is more conducive to loneliness than are secure and avoidant attachment (e.g., Berlin, Cassidy, & Belsky, 1995; Hazan & Shaver, 1987; see Mikulincer & Shaver, 2014, for a review). Attachment researchers likewise suggest that adults who are attachment-anxious may exaggerate their unsatisfied needs for love and security (e.g., Mikulincer & Shaver, 2007). In contrast, adults who are attachment avoidant may use defensive exclusion (Bowlby, 1980) as a defense mechanism against the pain of loneliness, which buffers the relation between isolation and feelings of loneliness for them (Cassidy & Kobak, 1988; Hazan & Shaver, 1987). In this way, loneliness and isolation are distinct experiences that are generally strongly related, but the nature of the relation between the two can be affected in multiple ways by other factors. Put simply, one can feel lonely in a crowd, and one can be isolated but not feel lonely.

Next, although loneliness and depression are both feelings of sadness, loneliness as a distressing experience is arousing, whereas depression is characterized by a decrease in activity (Rokach & Sha'ked, 2013). In other words, loneliness has been described as motivational: driving individuals to initiate social interactions (Weiss, 1973). Although there have been some contradictory findings regarding loneliness as being both arousing and paralyzing (see Peplau & Perlman, 1982, for a review), a perspective of stress level and stress tolerance can help to clarify the issue. That is, although a moderate level of distress is arousing and can promote productivity,

a stress level that is too high for one's stress tolerance can lead to ineffectual coping and can even be paralyzing (see Aldwin, Yancura, & Boeninger, 2010, for a review). Likewise, Peplau and Perlman (1982) noted a number of factors that can help explain contradictory findings regarding the motivational nature of loneliness, including that loneliness may be arousing yet interfere with effective action, that it may become debilitating over time, and that cognitive mediators may play a role. Additionally, Peplau and Perlman (1982) noted that depression is a broader phenomenon than loneliness, and the two constructs are different in this way as well.

Finally, the difference between loneliness—referring to the negative aspects of being alone—and positive solitude—referring to the positive aspects of being alone—can be clarified as follows: As noted by Rokach and Sha'ked (2013), an under-acknowledged consequence of the experience of loneliness is that—because it is painful—“...it directs one's attention inwardly as all pain does...and helps one take personal stock; evaluate relationships, goals, and values; and reorder one's priorities” (p. 22). In this way, positive solitude is a conceptually distinct correlate of loneliness as well.

Altogether, isolation, depression, and positive solitude are strong correlates of loneliness that are conceptually distinct from it. In consideration of these points, loneliness as conceptualized in IPARTheory “refers to a *feeling* of unhappiness, despondence, sadness, bleakness, or dejection resulting from the absence of and longing for desired companionship, or as a result of separation from a wanted relationship” (Rohner, 2016b, p. 9). In this way, loneliness is defined as (a) a feeling of psychological distress resulting from isolation, (b) an arousing experience of longing that is distinct from depression (i.e., a decrease in activity), (c) an unpleasant and distressing experience that is distinct from positive solitude, and (d) a common

experience regardless of its origin (e.g., resulting from relationship separation, or from the absence of felt companionship despite being in an intimate relationship).

Purpose of the Present Study

The purpose of this study was to create a new loneliness measure consistent with the IPARTheory definition of loneliness. From the conceptual standpoint of IPARTheory, both the UCLALS in its current form (Version 3; Russell, 1996) and the De Jong Gierveld Loneliness Scale in its current form (De Jong Gierveld LS; De Jong Gierveld & Van Tilburg, 2006) are methodologically strong overall, but flawed in some way.

First, the UCLALS measures isolation (e.g., “How often do you feel left out?”; Version 3; Russell, 1996) rather than loneliness per se. Also, factor analytic testing of the measure has often revealed more than one factor (e.g., Oshagan & Allan, 1992), despite the fact that the measure is intended to be unidimensional (Russell, 1982). It is difficult to determine whether the presence of multiple factors in the measure is due to the existence of multiple types of loneliness and the detection of them by the measure, or whether the measure instead assesses multiple, conceptually distinct constructs (e.g., isolation and loneliness). Oshagan and Allan (1992), for example, suggested that a subset of seven items from the scale provides a better unidimensional measure of loneliness, operationally defined as perceived deficits in close relationships (e.g., “I lack companionship”; Version 2; Russell, Peplau, & Cutrona, 1980). Still another possibility is that the presence of multiple factors in the measure may simply be due to methods variance issues such as the direction of item wording, as suggested by Russell (1996).

Next, the De Jong Gierveld LS (De Jong Gierveld & Van Tilburg, 2006) is designed to measure types of loneliness and is thus also not unidimensional. Further, although its Emotional Loneliness subscale (ELS) can be taken as a unidimensional measure of loneliness—

operationally defined as feelings of missing close relationships (e.g., “I miss having a really close friend”)—the manner in which the measure is scored provides further limitations. Specifically, items are scored on a 5-point Likert type scale ranging from (1) *No!* through (5) *Yes!* (De Jong Gierveld & Van Tilburg, 2006). Scored items are then dichotomized, such that—for each item—scale points 1 and 2 are recoded as 0 and scale points 3 through 5 are recoded as 1. In this way, total scores on the De Jong Gierveld LS range from 0, indicating total social embeddedness, to 11, indicating total loneliness (De Jong Gierveld & Van Tilburg, 2006). Prior evidence regarding the psychometric properties of the measure is based on this dichotomous scoring procedure. Thus, although ELS items appear at face value to adequately measure loneliness, the psychometric properties of the measure—where the original Likert type scale points were to be preserved—are unclear. Because of these problems with the existing measures of loneliness, I sought in this study to create a new loneliness measure that more closely aligned with the principles of IPARTheory.

Method

Sample

One hundred-thirty three adults (19% male) ranging in age from 18 through 68 years ($M[SD] = 29.87[14.93]$ years) provided complete data on three anonymous online self-report measures of loneliness. These measures were administered as part of a larger anonymous online survey (Study 2). This was a convenience sample and many participants were university students. A priori power analysis using G*Power 3 (Faul, Erdfelder, Buchner, & Lang, 2009) showed that the size of the sample was within the minimum sample size of 111 participants required to detect a moderate effect size of $r = .30$ at $p < .05$, with 95% power. Eighty percent of

the participants were Caucasian American, 67% were never married, and just under 50% had some college education. Full descriptive characteristics of the sample are presented in Table 1.

Measures

Three self-report measures and demographic questions were used. Each of these is described below.

UCLALS: Version 2. I used a seven-item subscale of the UCLALS: Version 2 (Russell et al., 1980) that has been shown by Oshagan and Allan (1992) to be a more strongly unidimensional measure of loneliness than the overall UCLALS: Version 2. Oshagan and Allan (1992) have shown the subscale to be reliable ($\alpha = .87$) and valid as a measure of perceived deficits in close relationships. Items are scored on a 4-point Likert scale from (1) *Never* through (4) *Often*. Higher scores indicate more loneliness. Cronbach's alpha for the subscale was .90 in the current sample.

De Jong Gierveld ELS. The De Jong Gierveld ELS (De Jong Gierveld & Van Tilburg, 2006) is a six-item, single factor measure of feelings of missing close relationships (e.g., "I miss having a really close friend"). Between the two De Jong Gierveld LS subscales, the ELS is more closely aligned to the definition of loneliness in IPARTheory. The measure has been shown to be reliable ($\alpha = .88$; De Jong Gierveld & Van Tilburg, 2006), and Cronbach's alpha was .87 in the current sample. Items are recorded on a 5-point Likert scale from (1) *No!* to (2) *No* to (3) *More or less* to (4) *Yes* to (5) *Yes!* These scale points were preserved (i.e., not dichotomized) for the present study.

Interpersonal Acceptance-Rejection Loneliness Scale (IPARLS). Twenty-five items were developed to measure feelings of sadness resulting from the absence of and longing for desired companionship, or as a result of separation from a wanted relationship (e.g., "I feel

unhappy because I am left out”, “I wish I had more friends”). A 5-point Likert-type scale was developed from (1) *Almost never true* through (5) *Almost always true*. Scores above 75 (range = 25 - 125) reveal higher levels of loneliness.

Adult Personal Information Form (Adult PIF). The Adult PIF (Rohner, 2005a) measures respondents’ age, gender, education level, occupational status, major language spoken at home, marital status, ethnicity, religion, and occupation.

Procedure and Data Analysis Plan

Loneliness measures were administered in the following order: De Jong Gierveld ELS, UCLALS: Version 2 subscale, and IPARLS. Descriptive statistics were initially examined to determine demographic characteristics of the sample (Table 1). Next, Cronbach’s alpha and principal component factor analysis were used to determine the reliability and factor structure of the IPARLS. Finally, bivariate correlations were used to assess the concurrent validity of the IPARLS with the UCLALS: Version 2 subscale, and with the De Jong Gierveld ELS.

Results

Reliability and Factor Structure of the IPARLS

The IPARLS showed excellent reliability in the current sample ($\alpha = .97$). However, principal component factor analysis revealed that the items loaded onto three factors: fifteen items loaded onto a factor which accounted for 57% of the variance in the items, seven items loaded onto an additional factor accounting for an additional 9% of item variance, and the final three items loaded onto a third factor accounting for an additional 5% of item variance (Figure 1). Items and varimax rotated factor loadings are shown in Table 2.

To achieve a unidimensional measure of loneliness—consistent with the IPARTheory conceptualization of loneliness as a unidimensional construct—we removed those items that

loaded onto factors 2 and 3, resulting in a 15-item ($\alpha = .96$) unidimensional measure accounting for 64% of the variance in the items. This also created a more parsimonious measure by eliminating some item redundancy, as reflected in the very high Cronbach's alpha of .97, and in the sharp drop in additional item variance explained after factor 1 (see Figure 1).

Finally, one item ("I could really use some company") was reworded to "I could really use the company of others" for use in future studies. The reason for the item rewording was to preserve validity for use in cross-cultural studies. That is, some respondents could become confused about the meaning of the item in its original wording (i.e., did it refer to a corporation or business), and the meaning of the reworded item should be clearer to respondents belonging to a variety of cultures with various languages. The 15-item IPARLS (final version) was used in all subsequent analyses.

Concurrent Validity of the IPARLS (Final Version)

The IPARLS was strongly correlated ($r = .84; p < .05$) with the De Jong Gierveld ELS, indicating excellent concurrent validity of the IPARLS with a measure of feelings of missing close relationships. Further, the IPARLS was strongly correlated ($r = .82, p < .05$) with the UCLALS: Version 2 subscale, indicating excellent concurrent validity with a measure of feelings of deficits in close relationships. The De Jong Gierveld ELS and the UCLALS: Version 2 subscale were also strongly correlated ($r = .77, p < .05$) with one another, indicating a close relation of feelings of deficits in close relationships to feelings of missing such relationships.

Discussion

These data suggest that the IPARLS (final version) has both strong internal reliability and a strong single factor structure. Although speculative, the difference between items that loaded onto factors 1 and 2 may be that factor 2 items primarily reflected loneliness due to insufficient

relationship quality (e.g., “I wish my social interactions were deeper”, “I need more closeness to others in my life”). In contrast, factor 1 items—which were retained—may primarily reflect loneliness due to insufficient relationship quantity (e.g., “I have a sense of emptiness because I lack friends”, “I wish I had more friends”).

The important thing to note is that the factor 2 items did not account for much additional variance beyond the factor 1 items. Thus, if it is the case that factor 2 and factor 1 items differed in terms of reflecting relationship quality versus relationship quantity, then it appears for the current sample as though assessing loneliness due to insufficient relationship quality did not provide much additional information after assessing loneliness due to insufficient relationship quantity. Although also speculative, the three items that loaded onto factor 3 may primarily have involved an intimate/romantic aspect versus friendships (e.g., “I am sad because I don’t have a partner”, “I am sad because I don’t have a loving relationship”), which caused them to load onto a factor distinct from the other two.

Finally, the IPARLS also shows strong concurrent validity with both the De Jong Gierveld ELS and the UCLALS: Version 2 subscale. As expected theoretically, this suggests that the measure is strongly associated with both a measure of perceived deficits in close relationships and a measure of missing close relationships. Given that the newly designed IPARLS performed as well or better than expected in this pilot study, I next tested its associations with adult remembrances of parental acceptance-rejection and current psychological adjustment.

Study 2

The perspective of attachment theory has proven to be a very useful framework for explaining the construct of loneliness (e.g., Wei et al., 2005). The study of loneliness from the

perspective of attachment theory began with the conceptual work of Weiss in 1973, and with the methodological work of De Jong Gierveld in 1978, and of Russell and colleagues in 1978. The original ideas of Bowlby (1969/1982, 1973, 1980) and Weiss (1973, 1975) regarding loss, loneliness, and depression in adulthood were that loneliness and depression were part of a single process in response to loss. Bowlby (1980) and Weiss (1975) thought that this process parallels the protest and despair aspects of separation distress in infancy in a number of important ways. These ideas were supported to an extent at the time via qualitative methods of studying loneliness in adulthood. For example, Weiss (1975) observed that adults who were grieving over a dying spouse would often undergo reactions similar to protest in infancy, such as feeling compelled to hold onto the dying spouse, and to keep him or her from leaving. Further, when Rubenstein and Shaver (1982) asked adult respondents to imagine a single visual scene in which their loneliness is completely assuaged, respondents would often describe a scene reminiscent of early parent-child relations, such as snuggling up against a father while the father watched television.

In later quantitative studies of loneliness in adulthood that built off of the original ideas of Bowlby and Weiss, researchers have been able to account for a large portion of the variance in adults' loneliness via the constructs of adult attachment anxiety and avoidance (Bowlby, 1988; Mikulincer & Shaver, 2007) and their consequences (e.g., Larose & Bernier, 2001; Wei et al., 2005). These studies have generally adopted Mikulincer and Shaver's (2007) conceptualization and Brennan, Clark, and Shaver's (1998) operationalization of adult attachment anxiety and avoidance (e.g., Wei et al., 2005; see Mikulincer & Shaver, 2014, for a review).

Adult Attachment Anxiety and Avoidance

According to Mikulincer and Shaver (2007), adult attachment anxiety and avoidance refer to attachment system functioning in close relationships, including adults' felt-sense of attachment security and the way in which adults deal with attachment-related threats and stressors. Mikulincer and Shaver (2007) proposed that adults who are attachment anxious or avoidant use hyperactivating or deactivating secondary attachment strategies, respectively, to cope with attachment-related threats and stressors (see also Cassidy & Kobak, 1988). According to Mikulincer and Shaver (2007), hyperactivating secondary attachment strategies refers to energetic attempts to achieve a felt-sense of belonging, combined with skepticism that belonging will be achieved, and with feelings of anger and despair when belonging is not felt. In contrast, deactivating secondary attachment strategies refers to efforts to avoid closeness and interdependence, and to not seek proximity to others when one's sense of belonging is threatened, combined with a denial of vulnerability and emotional dependence on others (Mikulincer & Shaver, 2007).

Finally, primary attachment strategies in adulthood refers to a healthy sense of interdependence, and to a set of constructive and effective strategies for regulating affect in response to perceived threats to one's sense of belonging (Mikulincer & Shaver, 2007). According to Mikulincer and Shaver (2007), these strategies are effective in achieving a felt-sense of belonging while limiting feelings of skepticism, anger, and despair, or defensiveness and denial. Lastly, according to Bowlby (1988), and to Mikulincer and Shaver (2007), a sense of belonging in adulthood is largely internal and symbolic in nature, although the felt-need for actual others remains present throughout the lifespan.

Regarding the measurement of adult attachment anxiety and avoidance, the Experiences in Close Relationships Scale (ECR; Brennan et al., 1998) is a commonly used survey instrument. The measure is operationalized consistently with Mikulincer and Shaver's (2007) view of adult attachment anxiety (e.g., "Sometimes I feel that I try to force others to show more feeling, more commitment to our relationship than they otherwise would") and avoidance (e.g., "I turn to close relationship partners for many things, including comfort and reassurance" [reverse-coded]). As described in the following section, this measure—which was formed via a synthesis of multiple similar, previously existing attachment measures (Brennan et al., 1998; see also Mikulincer & Shaver, 2007)—has been particularly useful in accounting for variations in the level of loneliness among college freshmen.

The Attachment-Theoretical Survey Study of Loneliness

In an exemplary attachment-theoretical study of loneliness in adulthood, Wei and colleagues (2005) accounted for 55% of the variance in freshman college students' loneliness via their adult attachment anxiety and avoidance as measured by the ECR (Brennan et al., 1998), along with their sense of social self-efficacy, and their comfort with self-disclosure. Further, Wei and colleagues (2005) concluded that social self-efficacy partially mediated the relation between attachment anxiety and loneliness, and that comfort with self-disclosure fully mediated the relation between attachment avoidance and loneliness. That is, attachment avoidance did not significantly predict unique variance in loneliness after controlling for comfort with self-disclosure. Finally, the authors also found that loneliness was strongly associated with depression ($r = .74, p < .01$), and that the initial level of respondents' loneliness and depression predicted 42% of the variance in their depression five months later. These results suggest that adult attachment anxiety and avoidance, and psychological adjustment factors such as social self-

efficacy and comfort with self-disclosure, are important predictors of mental health (e.g., loneliness, depression) in adulthood.

Similarities and Differences between Attachment Theory and IPARTheory

Around the same time that Wei and colleagues (2005) conducted their attachment-theoretical study of loneliness, Hughes, Blom, Rohner, and Britner (2005) conducted the first empirical investigation of similarities and differences between attachment theory (Bowlby, 1969/1982, 1973, 1980) and IPARTheory (Rohner, 2016a). Their study was based on an observation that—although the two theories were independently created and developed from different approaches—they converged in their ideas about family of origin experiences and their consequences in a number of important ways. Similar to attachment theory, IPARTheory postulates that children and adults have a psychologically felt need to belong that acts as a powerful behavioral motivator (Hughes et al., 2005). Also, IPARTheory postulates that the perceived experiences of acceptance and rejection by primary caregivers in early childhood are of central and enduring importance to personality development and mental health into adulthood (Rohner, 2016a).

Parenting behavior. Whereas the main parenting construct in attachment theory is parental sensitivity (Hughes et al., 2005), the main parenting construct in IPARTheory is parental acceptance-rejection, existing on a continuum and consisting of any combination of warmth/affection, hostility/aggression, indifference/neglect, and/or undifferentiated rejection (Rohner, 2004; see Rohner, 2016a, for a review). Undifferentiated rejection refers to the perceived experience of not being cared about, despite a lack of clear behavioral indicators of parental aggression, neglect, and/or lack of affection (Rohner, 2016a). Similar to Bowlby's (1988) and Mikulincer and Shaver's (2007) conceptualizations of one's sense of belonging as

internal and symbolic in nature, parental acceptance-rejection is defined in IPARTheory in terms of the symbolic and subjective felt-experience of the child (Rohner, 2016a).

Child outcomes. Whereas attachment theory has focused mainly on attachment behaviors (e.g., attachment anxiety, attachment avoidance) as outcomes of parenting (Hughes et al., 2005), IPARTheory and evidence (e.g., Rohner & Khaleque, 2010) indicates that the experience of parental acceptance-rejection in childhood is reliably associated panculturally with a specific cluster of psychological adjustment outcomes in children. These are defined in IPARTheory as personality characteristics, as in more or less stable sets of predispositions to respond and actual modes of responding to various life situations and in various contexts (Rohner, 2016a). Principal among these personality outcomes in their negative forms are (a) dependence or defensive independence, defined in terms of the frequency and intensity of felt-yearning for positive response from close relationship partners; (b) hostility and aggression, including physical aggression, relational aggression, passive aggression, and problems with the management of hostility and aggression; (c) emotional unresponsiveness, defined in terms of difficulties expressing and receiving emotions in close relationships; (d & e) impaired self-esteem and self-adequacy, defined in terms of feelings of self-worth and self efficacy (i.e., instrumental competence), respectively; (f) emotional instability, defined in terms of stress tolerance, and (g) negative worldview, including views of relationships and of life in general (Khaleque & Rohner, 2002; Rohner & Khaleque, 2010).

Methodological differences. Finally, Hughes and colleagues (2005) noted that IPARTheory has relied extensively on the self-report measurement of the perceived experience of individuals. In contrast, attachment theory (Bowlby, 1969/1982, 1973, 1980) began with a heavy emphasis on laboratory research and behavioral observations (Hughes et al., 2005). As

noted by Rohner (2016a), a potential limitation of such a behavioral approach is that outside observers can fail to detect explicit indicators of interpersonal rejection, in cases where rejection is nevertheless felt by offspring. As discussed later, another potential limitation to such a behavioral approach involves potential measurement equivalence issues that can stem from differences in behavioral expressions of parenting between mothers and fathers.

The Study of Linkages between Attachment Theory and IPARTheory

Based on the realization that the central tenets of IPARTheory parallel attachment theory in a number of important ways, Hughes and colleagues (2005) tested expected linkages between the two theories using attachment theory's Preschool Strange Situation procedures (Cassidy & Marvin, 1992). They found that the construct of parental acceptance from IPARTheory was strongly associated with the construct of maternal sensitivity from attachment theory (Hughes et al., 2005). Additionally, most—but not all—of the measures of parental behavior and child outcomes from each theory were highly correlated in the expected manner (Hughes et al., 2005). Other measures—such as IPARTheory's intrusive control subscale of parental behavior and attachment theory's sensitivity, over-involving, and role-reversal parenting subscales—failed to correlate, reflecting significant differences between the two theories and their measures (Hughes et al., 2005).

Purpose of the Present Study

In light of all of this, I hypothesized that the experience of parental acceptance-rejection in childhood should be strongly implicated in explaining variations in adults' mental health (e.g., loneliness, depression), and that the relation should be mediated by the effect of acceptance-rejection experiences in the family of origin on children's psychological adjustment (e.g., self-adequacy, emotional unresponsiveness). IPARTheory's constructs of self-adequacy and

emotional unresponsiveness (see Rohner, 2016b) are similar conceptually to the constructs of social self-adequacy and comfort with self-disclosure that were measured in Wei and colleagues' (2005) attachment-theoretical study of adult loneliness. Further, adult attachment anxiety and avoidance as conceptualized by Mikulincer and Shaver (2007)—and as operationalized in the ECR (Brennan et al., 1998)—are similar to the concepts of dependence and defensive independence in IPARTheory (Hughes et al., 2005). However, loneliness has not been studied previously from the perspective of IPARTheory.

There are a number of reasons to study loneliness in adulthood from the perspective of IPARTheory. First, the construct and study of parental acceptance-rejection in IPARTheory provides further information about family of origin experiences and their effects, beyond that which is provided by the construct and study of parental sensitivity in attachment theory. Hughes and colleagues (2005) noted that parental (in) sensitivity involves a multifaceted set of behaviors, such as indifference to children's cues (an acceptance-rejection dimension) and misperceptions or misinterpretations of the cues (a communication dimension). In this way, attachment theory measures may cover additional aspects of parenting beyond acceptance-rejection, but the extent to which child outcomes are due to parental acceptance-rejection per se cannot be determined adequately from the measures (Hughes et al., 2005).

Next, although attachment theory covers additional aspects of parenting beyond acceptance-rejection, IPARTheory provides additional information regarding the consequences of parental acceptance-rejection in children (Hughes et al., 2005). That is, whereas adult attachment anxiety and avoidance are defined in terms of felt-security and the presence of hyperactivating or deactivating attachment behaviors, IPARTheory recognizes that the experience of parental rejection results in a cluster of distinct factors beyond this. These factors

include emotional instability, hostility/aggression, negative worldview, and others, which are explicitly identified and measured in IPARTheory research.

Finally, defining parental sensitivity in terms of a set of parenting behaviors introduces the possibility of measurement equivalence issues when applying a measure of maternal sensitivity to fathers. That is, the way that fathers express sensitivity behaviorally (e.g., verbal encouragement) might be different from the way mothers behaviorally express sensitivity (e.g., hugs). The conceptualization and measurement of maternal and paternal acceptance-rejection in IPARTheory as a set of beliefs held by the child (rather than as a set of behaviors exhibited by the parent) provides a different perspective that may not create such a measurement equivalence issue. In other words, although the behavioral expression of acceptance-rejection might be different for mothers compared to fathers, the child's perceived experience may be the same and thus be equivalently captured by IPARTheory measures. Indeed, attachment-theoretical studies predicting differential developmental outcomes in children from child-mother and child-father attachment quality have generally found child-mother attachment quality to be a stronger predictor (e.g., Main, Hesse, & Kaplan, 2005; see Howes & Spieker, 2008, for a review). However, studies based on IPARTheory have often shown that paternal acceptance-rejection is often as strongly or more strongly predictive than maternal acceptance-rejection of similar child outcomes (e.g., Veneziano, 2000; see Rohner & Veneziano, 2001, for a review).

In light of these considerations, I sought to test (a) the extent to which adults' remembrances of experienced parental (maternal and paternal) acceptance-rejection in childhood predict their current loneliness; (b) the extent to which these associations are mediated by psychological adjustment consequences of parental acceptance-rejection (e.g., self-adequacy, emotional responsiveness); (c) the extent to which paternal acceptance-rejection explains unique

variance in adults' loneliness after controlling for maternal acceptance-rejection and vice versa; and (d) the extent to which specific personality consequences are especially salient in explaining variations in adults' loneliness, all using the loneliness scale developed and described in Study 1.

Method

Sample

Data for Study 2 were drawn from the same sample as Study 1. However, out of 133 participants from Study 1, only 122 participants (18% male) ranging in age from 18 through 68 years ($M[SD] = 28.91[14.32]$ years) provided complete data for all major Study 2 variables.

Measures

Six self-report measures and demographic questions were used. Each of these is described below.

Adult Parental Acceptance-Rejection Questionnaire: Mother and Father versions, short forms. The Adult PARQ: Mother and Father, short forms (Rohner, 2005b) are two almost identical self-report measures assessing adults' remembrances of experienced maternal and paternal acceptance-rejection in childhood. The measures differ only in their referent, and contain the same four subscales. These include (a) warmth/affection (8 items; e.g., "My mother [father] said nice things about me"), (b) hostility/aggression (6 items; e.g., "My mother [father] punished me severely when she [he] was angry"), (c) indifference/neglect (6 items; e.g., "My mother [father] paid no attention to me"), and (d) undifferentiated rejection (4 items; "My mother [father] seemed to dislike me") subscales. All items are scored on a 4-point Likert scale from (1) *Almost never true* through (4) *Almost always true*. The warmth/affection subscale is reverse-coded prior summing scores with the other three subscales. For the present study, subscales were combined to create one total score, per parent, of acceptance-rejection for use in

analyses. The Adult PARQ: Mother and Father, short forms have excellent reliability, with a Cronbach's alpha value of .95 for the Mother version and a Cronbach's alpha value of .96 for the Father version in the present study. The measures also have robust validity (Rohner, 2011). Scores at or above 60 (range = 24 – 96) reveal the remembrance of qualitatively more rejection than acceptance in childhood.

Adult Personality Assessment Questionnaire, short form. The Adult PAQ, short form (Rohner & Khaleque, 2005) is a self-report measure assessing the form of psychological adjustment associated with perceived parental acceptance and rejection in childhood (e.g., Rohner & Khaleque, 2010). The measure consists of 42 items divided into seven 6-item subscales: (a) hostility/aggression (e.g., “I think about fighting or being unkind”), (b) dependence (e.g., “I like my friends to feel sorry for me when I feel ill”), (c) self-esteem (e.g., “I like myself”), (d) self-adequacy (e.g., “I feel I can do the things I want as well as most people”), (e) emotional responsiveness (e.g., “I have difficulty showing people how I really feel”), (f) emotional stability (e.g., “I get upset when things go wrong”), and (g) worldview (e.g., “I see life as full of dangers”). All items are scored on a 4-point Likert scale from (1) *Almost never true of me* through (4) *Almost always true of me*. Each subscale provides a measure of a specific aspect of psychological adjustment, and the summation of the subscales can be used as a measure of overall psychological adjustment. For the present study, both overall psychological adjustment and the seven specific psychological adjustment factors were used in analyses (separately).

The overall scale has excellent reliability, with a Cronbach's alpha value of .94 in the present study. Additionally, the subscales showed adequate reliability in the present study, with Cronbach's alpha values ranging from .76 to .87 with the exception of the dependence subscale ($\alpha = .67$). The overall scale also has robust validity (Rohner & Khaleque, 2005). Overall scores

at or above 105 (range = 42 -168) indicate qualitatively more psychological maladjustment than adjustment.

All subscales likewise have a linear relation to maternal and paternal acceptance-rejection, with the exception of the dependence subscale, which is curvilinear (Rohner & Khaleque, 2005). Since dependence has been shown to have a curvilinear relation to perceived parental acceptance-rejection in childhood, the relation of dependence to loneliness was examined in the present study for potential non-linearity. This was achieved by examining the shape of the distribution of dependence scores to loneliness scores and determining whether a linear or non-linear model best fit the shape. Finally, prior research (Rohner & Khaleque, 2005) indicates that the likelihood of serious shared methods variance problems is minimal when administering the Adult PAQ, short form in conjunction with the Adult PARQ: Mother and Father, short forms.

IPARLS (final version). The final 15-item, unifactorial version of the IPARLS described in Study 1 ($\alpha = .96$) was used in Study 2. Items are scored on a 5-point Likert scale from (1) *Almost never true* through (5) *Almost always true*. Scores above 45 (range = 15-75) indicate higher levels of loneliness.

Study 1 measures. Finally, as detailed in Study 1, participants responded to two additional self-report measures of loneliness. These included the six-item De Jong Gierveld Emotional Loneliness Scale (De Jong Gierveld ELS; De Jong Gierveld & Van Tilburg, 2006) and a seven-item subscale (Oshagan & Allan, 1992) of the UCLA Loneliness Scale: Version 2 (UCLALS: Version 2; Russell et al., 1980). In Study 1, these measures were analyzed in terms of the strength of their relations to each other, via bivariate correlation analyses. For the present study, these measures were additionally analyzed in terms of the strength of their relations to all

other major Study 2 variables via bivariate correlations. Lastly, as described in Study 1, the Adult Personal Information Form (Adult PIF; Rohner, 2005a) was used for demographic information.

Procedure and Data Analysis Plan

Measures were administered in an online survey in the following order: Adult PIF; Adult PARQ: Father, short form; Adult PARQ: Mother, short form; Adult PAQ, short form; De Jong Gierveld ELS, UCLALS: Version 2 subscale, and IPARLS. Descriptive statistics were initially run to determine demographic characteristics of the sample, as well as mean scores and standard deviations for all major study variables. Next, *t*-tests were completed to assess gender differences in all major study variables. Bivariate correlations were then tested among all major study variables.

Finally, hierarchical regression controlling for age and gender was performed to determine (a & b) whether maternal acceptance-rejection significantly predicts unique variance in loneliness after controlling for paternal acceptance-rejection and vice versa, (c) the extent to which these associations are mediated by adults' current psychological adjustment, and (d) the total variance in loneliness explained by parental acceptance-rejection and psychological adjustment. In order to test this, four models were specified in which respondents' age and gender were entered in step 1, remembered maternal acceptance-rejection was added in step 2, remembered paternal acceptance-rejection was added in step 3, and current psychological adjustment was added in step 4. Lastly, the Adult PAQ, short form subscales were entered into the hierarchical regression in place of total Adult PAQ scores, in order to determine which specific aspects of adults' current psychological adjustment were especially salient predictors of current loneliness.

Finally, because the associations of dependence with experiences of maternal and paternal acceptance-rejection were expected to be non-linear (Rohner, 2016a), the dependence subscale of the Adult PAQ was also examined with regard to potential non-linearity in its relationship with loneliness in the present sample. To determine this, the graphical distribution of dependence and loneliness scores in the sample was examined visually to determine whether it was linear or non-linear in shape.

Results

Descriptive Statistics and *t*-Tests for Gender Differences

Participants, on average, scored well below the median for remembrances of maternal acceptance-rejection ($M[SD] = 37.74[12.98]$), remembrances of paternal acceptance-rejection ($M[SD] = 41.27[15.59]$), current psychological adjustment ($M[SD] = 87.41[20.00]$), and current loneliness as measured by the IPARLS ($M[SD] = 35.05[14.49]$; Table 1). This indicates qualitatively more remembered paternal and maternal acceptance than rejection, qualitatively low levels of psychological maladjustment, and qualitatively low levels of loneliness in the present sample. No significant mean gender differences were detected for any study variables, and no subsequent analyses were run separately by gender.

Bivariate Correlations

The IPARLS was significantly associated with the Adult PARQ for Mothers ($r = .295, p < .05$) and for Fathers ($r = .423, p < .05$), and with the Adult PAQ ($r = .727, p < .05$). Further, the IPARLS was more strongly associated with these measures than either the De Jong Gierveld ELS or the UCLA Loneliness Scale: Version 2 subscale. Specifically, the De Jong Gierveld ELS was more weakly associated with the Adult PARQ for Mothers ($r = .279, p < .05$) and for Fathers ($r = .345, p < .05$), and with the Adult PAQ ($r = .683, p < .05$); and the UCLA

Loneliness Scale: Version 2 subscale was also more weakly associated with the Adult PARQ for Mothers ($r = .256, p < .05$) and for Fathers ($r = .332, p < .05$), and with the Adult PAQ ($r = .718, p < .05$). Thus, the IPARLS was used as the loneliness measure for all subsequent analyses.

Finally, the Adult PAQ was associated with the Adult PARQ for Mothers ($r = .335, p < .05$) and for Fathers ($r = .428, p < .05$), and the Adult PARQ: Mother and Father versions also were associated with each other ($r = .421, p < .05$). Bivariate correlation analyses among all major study variables are presented in Table 3.

Hierarchical Regression Analyses

Respondents' age and gender did not significantly predict loneliness when entered into regression (step 1). Next, remembrance of maternal acceptance-rejection significantly predicted current loneliness ($\beta = .32, p < .05$) when entered in step 2. However, when remembrance of paternal acceptance-rejection was added in step 3, maternal acceptance-rejection no longer significantly predicted loneliness ($\beta = .16, p = .08$), indicating a non-significant effect after controlling for the effect of paternal acceptance-rejection. In contrast, paternal acceptance-rejection significantly predicted current loneliness ($\beta = .40, p < .05$) after controlling for maternal acceptance-rejection. Lastly, when current psychological adjustment was entered in step 4, neither maternal ($\beta = .02, p = .74$) nor paternal ($\beta = .14, p = .06$) acceptance-rejection significantly predicted current loneliness, indicating that current psychological adjustment ($\beta = .65, p < .05$) fully mediated these associations, although paternal acceptance-rejection was only marginally non-significant (Table 4). A follow-up Sobel (1982) test indicated that psychological adjustment significantly mediated the relation between paternal acceptance-rejection and loneliness ($z = 4.83, p < .05$). A total of 52% of the variance in respondents' current loneliness

was predicted by their remembrances of maternal and paternal acceptance-rejection and their current psychological adjustment, after controlling for age and gender.

Finally, when respondents' total psychological adjustment scores were replaced in the final step with their individual scores on each of the seven Adult PAQ subscales, current self-adequacy ($\beta = .37, p < .05$), emotional stability ($\beta = .26, p < .05$), emotional responsiveness ($\beta = .26, p < .05$) and dependence ($\beta = .19, p < .05$) significantly predicted unique variance in their current loneliness. However, hostility/aggression, self-esteem, and worldview did not significantly predict loneliness after controlling for these other aspects of psychological adjustment (Table 5). In the present sample, dependence appeared to have a linear association with loneliness (Figure 2).

Discussion

The IPARLS—which was shown in Study 1 to be reliable and to have concurrent validity with the UCLALS and the De Jong Gierveld ELS—was shown in this study to be slightly more strongly associated than these loneliness measures with all other major study variables in the present sample. Altogether, the IPARLS appears to be a strong measure of loneliness as defined in IPARTheory. Evidence from these studies suggests that the IPARLS is viable for use in future investigations of loneliness.

Overall, both men and women in the present sample felt they had been accepted by their mothers and fathers in childhood, and were relatively well adjusted psychologically and non-lonely currently. However, their remembrances of the level of maternal and paternal acceptance-rejection they experienced in childhood, together with their current self-reported psychological adjustment, accounted for a large portion of the variance in their self-reported loneliness. Further, among individual psychological adjustment factors, loneliness was predicted for the

most part by participants' self-adequacy, emotional stability, emotional responsiveness, and dependence. In contrast, participants' hostility/aggression, self-esteem, and worldview did not significantly predict loneliness after controlling for these other factors.

Next, in the present sample, there were no significant gender differences for any study variables, and the association between participants' dependence and their loneliness was linear. These findings in particular await further replications with more diverse samples, however, in order to assess their generalizability. Notably, the vast majority of participants in the present study were female. Finally, regarding the relation of dependence and loneliness, it may be the case that the association is linear among participants who are relatively well adjusted psychologically and tend to exhibit healthy interdependence, but the association may still be non-linear across the entire range of dependence.

Linkages between Attachment Theory and IPARTheory

The results of this study closely parallel Wei and colleagues' (2005) findings that approximately half of the variance in freshman college students' current loneliness is explained by their attachment anxiety, social self-efficacy, and comfort with self-disclosure. Thus, similar to Hughes and colleagues' (2005) study that bridged IPARTheory and attachment theory in the preschool Strange Situation, the results here show a close convergence between the two theories in studies involving self-report survey methods. These convergences—as well as strengthening the findings of each study—can provide a useful window into directions for future research (Hughes et al., 2005). That is, since attachment theory and IPARTheory differ in their emphases, each theory can potentially enrich the other (Hughes et al., 2005).

The present study builds upon previous attachment research in the following ways. First, the results here are based on adults' remembrances of experienced parental acceptance-rejection

in childhood, which is one of multiple dimensions of parenting (cf., communication, behavioral control; Hughes et al., 2005). Thus, differently from attachment-theoretical studies, the results here can be tied to acceptance-rejection per se.

Next, the present study incorporates additional psychological adjustment variables beyond dependence, social self-efficacy and comfort with self-disclosure (Wei et al., 2005). Thus, results of this study suggest not only that approximately half the variance in adults' current loneliness is due to these psychological adjustment factors, but also that (a) adults' emotional stability significantly accounts for additional unique variance in their loneliness, and (b) adults' self-esteem, hostility/aggression, and worldview do not significantly predict their loneliness after controlling for these other factors.

Finally, the results of this study show the effects of adults' remembrances of experienced maternal acceptance-rejection after controlling for paternal acceptance-rejection, and vice versa. According to this study, paternal acceptance-rejection is more strongly predictive of loneliness than maternal acceptance-rejection. Specifically, adults' remembrances of maternal acceptance-rejection did not predict their current loneliness after controlling for their remembrances of paternal acceptance-rejection, but paternal acceptance-rejection continued to predict their current loneliness after controlling for maternal acceptance rejection.

This is similar to a general pattern of findings from IPARTheory research which indicate that paternal acceptance-rejection explains a unique and independent portion of the variance in child and young adult outcomes (e.g., overall psychological adjustment) over and above the portion explained by maternal acceptance-rejection (see Rohner & Veneziano, 2001, for a review). In contrast, attachment theoretical studies that have compared child-mother attachment quality to child-father attachment quality generally find that similar outcomes (e.g., attachment

anxiety and avoidance) are more strongly predicted by child-mother attachment than child-father attachment (see Howes & Spieker, 2008, for a review).

The present study fits into the more general pattern of findings from IPARTheory regarding the importance of paternal acceptance-rejection. This is important to investigate further. It may be that the discrepancy reflects a measurement validity issue, as if measures are not equivalent across mothers and fathers, differences that truly occur at the measurement level can instead appear at the level of associations between substantive variables, leading to inaccurate findings/interpretations of substantive differences between mothers and fathers (Adamsons & Buehler, 2007). Alternatively—as measures of child-mother and child-father attachment quality assess additional aspects of parenting beyond acceptance-rejection—it may be that acceptance-rejection is an especially salient predictor of outcomes such as loneliness in the child-father relationship, whereas different aspects of parenting are especially salient in the child-mother relationship. Lastly, further investigation of the question of why either child-mother or child-father relationships are more strongly predictive of certain outcomes can advance theory and practice.

Rohner (2014), for example, has shown that children's and young adults' perceptions of each parent's prestige and interpersonal power within the family tend to moderate the relations between perceived maternal and paternal acceptance and the offspring's psychological adjustment. According to Rohner (2014), interpersonal power refers to a person's ability to influence the opinions and behavior of others, whereas prestige refers to signs of esteem, respect, admiration, approval, or high regard by others. IPARTheory studies (Rohner, 2014) indicate that the more interpersonal power that fathers are perceived to have relative to mothers, the stronger the relation of adult daughters' remembrances of paternal rejection to their current psychological

adjustment is. But for adult sons, the relation between paternal rejection and their current psychological adjustment is stronger when fathers are perceived to have more prestige relative to mothers. The results of the present study raise more questions than they answer with regard to this issue, and clarification of the issue awaits further investigations.

Conclusion

These studies have made new methodological and conceptual contributions to the study of loneliness in the behavioral sciences. The results of Study 1 indicate that the IPARLS is a promising measure for use in future research. The instrument addresses long-standing challenges regarding the measurement of loneliness that investigators have confronted in the past. These include (a) the confounding of loneliness with other variables in measurement instruments, including hypothesized causes of loneliness (see Weeks & Asher, 2012, for a review) and other distinct correlates of loneliness (e.g., isolation); and (b) the long-standing debate regarding the dimensionality of loneliness and its fundamental nature more generally.

Additionally, in Study 2, the interpersonal acceptance-rejection perspective has made additional contributions to the ongoing study of loneliness. These include (a) an examination of the mediating roles of seven psychological adjustment factors in the relations of adults' current self-reported loneliness to their remembrances of experienced parental acceptance-rejection in childhood, (b) an examination of the relative predictive power of maternal versus paternal acceptance-rejection, and (c) an examination of maternal and paternal acceptance-rejection per se, un-confounded from other parenting variables such as communication and behavioral control.

Limitations and Future Directions

A number of contributions to the study of loneliness from the present research come from the comparison of the results to previous attachment-theoretical loneliness research. For

example, the close convergence of the present results with Wei and colleagues' (2005) study of loneliness in college freshmen strengthens the results of either study by showing that they replicate across independently developed theories.

The parallel findings also make readily apparent promising directions for future research via bridging of the two theories (Hughes et al., 2005). For example, the dependence subscale of the Adult PAQ in IPARTheory is believed to be under-representative somewhat of the dependence construct in the theory (Rohner & Khaleque, 2005). In contrast, the construct (Mikulincer & Shaver, 2007) and measurement (Brennan et al., 1998) of attachment anxiety—which is similar to dependence in IPARTheory (Hughes et al., 2005)—has been developed extensively by attachment theorists and may be useful to incorporate into studies based on IPARTheory. Likewise, the Adult PAQ may be useful to attachment researchers who are interested in testing other psychological adjustment factors that mediate or otherwise co-occur with the relations of attachment anxiety and avoidance to loneliness. Also, the similarities and differences between attachment theory and IPARTheory elucidate an important direction for research regarding mothering versus fathering versus parenting, since conflicting results have been found between the two theories regarding the relative effects of mothers versus fathers in predicting the psychological adjustment of offspring. Further investigation of the convergences and divergences between the two theories and their measures can help to elucidate this issue.

These points stated, the current studies have limitations that restrict their generalizability and interpretations that can be made based on them. The studies are based on a convenience sample largely consisting of university students and predominantly consisting of female participants. In particular, the present finding of no significant mean gender differences for any

major study variable awaits testing with samples including more male participants, and ideally balanced by gender, to determine whether the results replicate.

It is also worth noting that the present findings are based on self-reports of adults' current psychological adjustment and loneliness, and self-reports of adults' retrospective remembrances of experienced parental acceptance and rejection in childhood. It might be that more lonely or less psychologically well-adjusted individuals have reconstructed memories of their childhoods that are more negative than more well-adjusted, less lonely adults, independent of the actual quality of their relationships with their parents during childhood. Another potential measurement bias in Study 2 involves shared methods variance. However, prior testing of the Adult PARQ and the Adult PAQ indicates only minimal likelihood of serious shared methods variance issues when administering these measures in conjunction with one another (Rohner & Khaleque, 2005).

Consistent with the cross-cultural goal in IPARTheory (see Rohner, 2016a), one direction for further research based on the present results is to test whether they replicate in other cultures. The present results lend further support to the importance of encouraging and enabling American parents to be less rejecting and more accepting of their children, as they add loneliness in the current sample to the number of other factors that have been shown to be associated with parental acceptance-rejection, both in the current sample and worldwide (e.g., Rohner & Khaleque, 2010). However, it would not be culture-fair to suggest that loneliness is panculturally associated with parental acceptance-rejection until the present results are adequately replicated cross-culturally.

Likewise, the psychological adjustment factors mediating the relations between adults' remembrances of parental acceptance-rejection and their current loneliness need to be tested in other cultures to determine whether they are the same panculturally. For example, the present

results suggest the usefulness of a social skills intervention by showing that current loneliness is largely predicted by social self-efficacy in the present sample. But, this implication can only be applied more broadly after replication studies have determined whether social self-efficacy remains a major predictor of loneliness across various cultures.

A second direction for future research involves studying individuals who are above—rather than below—the median on loneliness. This can build upon the present results in multiple ways. First, scores on the IPARLS and the UCLALS can be compared to determine the extent to which they differ. In the present sample, participants were relatively well adjusted psychologically, and scores between the two loneliness measures only differed to a slight degree. But as attachment anxiety and attachment avoidance affect the relation between isolation and loneliness (Mikulincer & Shaver, 2014, for a review), and the UCLALS measures isolation rather than loneliness per se, it may be the case that the scores between it and the IPARLS are only slightly different for psychologically well-adjusted individuals. In other words, regarding cognitive factors that modulate the intensity of loneliness resulting from isolation (Peplau & Perlman, 1979), the modulation may be larger and more complex for lonelier individuals.

Likewise, the present results regarding the psychometric properties of the IPARLS indicate that little additional information was gained about participants' loneliness from the items in factors 2 and 3, after controlling for the items loading on factor 1 in the initial item pool. In consideration of the ongoing debate regarding whether loneliness exists as one or multiple types, however, it may be worthwhile to test whether the items in these additional factors continue to contribute little additional unique information beyond the items in factor 1 in samples of lonely individuals. The finding may be unique to the college experience or to the characteristics of the participants in the current sample.

The perspective of IPARTheory has proven to be very useful in contributing to the study of loneliness. The results here show that the current self-reported loneliness of adults in the present sample is due to their remembrances of parental acceptance-rejection per se. This is different from parental sensitivity as studied previously in attachment theory, since the construct of sensitivity includes multiple factors beyond acceptance-rejection (Hughes et al., 2005), confounding the ability to tie results to acceptance-rejection alone. The present results also bolster previous findings from attachment theory wherein over half of the variance in college students' loneliness has been predicted by a handful of factors (Wei et al., 2005), by showing that these results replicate from the perspective of IPARTheory as well. The results here also build upon previous research by showing psychological adjustment factors that do not significantly account for unique variance in loneliness, after accounting for those other aspects of psychological adjustment that do predict loneliness. Altogether, psychological adjustment factors such as social self-efficacy and dependence, and parental acceptance-rejection, have been supported as important targets for intervention from the perspective of curtailing loneliness. Taken together with the fundamental nature that loneliness plays in the well being of individuals and of overall societies, there is much potential in acknowledging and addressing these discrete aspects of parenting and of offspring psychological adjustment and loneliness.

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Tables

Table 1. Descriptive Sample Characteristics ($N = 133$)

Characteristic	<i>M</i>	<i>SD</i>	Range
Age	29.87	14.93	18 - 68
Adult PARQ: Mother	37.74	12.98	24 - 96
Adult PARQ: Father	41.27	15.59	24 - 96
Adult PAQ	87.41	20.00	42 - 168
IPARLS	35.05	14.49	15 - 75
De Jong Gierveld ELS	17.16	5.98	6 - 30
UCLA Loneliness Scale: Version 2 subscale	16.48	5.39	7 - 28

Characteristic	<i>n</i>	%
Gender		
Female	106	81.5
Male	24	18.5
Unidentified	3	
Ethnicity		
White	106	79.7
Asian	9	6.8
Black	8	6.0
Biracial or Multiracial	4	3.0
Hispanic	1	0.8
Other	5	3.8
Marital Status		
Never Married	87	65.4
Married and Cohabiting	34	25.6
Unmarried and Cohabiting	8	6.0
Divorced or Separated	7	5.3
Education		
Some College	56	42.1
Postgraduate	33	24.8
Four-year College Graduate	23	17.3
High School Graduate	19	14.3
Business or Trade School Graduate	2	1.5
Employment Status		
Part-time	55	42.0
Full-time	47	35.9
Unemployed and not Seeking Employment	13	9.9
Unemployed and Seeking Employment	10	7.6
Other	6	4.6
Unidentified	2	

Table 2. Items and Varimax Rotated Factor Loadings for the Initial IPARLS Item Pool

	Factor		
	1	2	3
1. I feel badly because I am isolated from others	.79	.26	.25
2. I feel unhappy because I am left out	.85	.09	.19
3. I feel sad because I don't have companionship	.58	.29	.52
4. I have a sense of emptiness because I lack friends	.80	.33	.26
5. I feel dejected because my circle of friends is too limited	.71	.35	.19
6. I feel lonely	.62	.36	.47
7. It hurts to be so alone	.60	.18	.57
8. I am sad because I don't have a partner	-.07	.18	.83
9. I wish I had more friends	.69	.46	.03
10. I feel unhappy because I don't have a comrade	.36	.39	.56
11. I feel like reaching out to others so I won't feel so alone	.40	.31	.37
12. I am distracted by feelings of loneliness	.63	.25	.47
13. It bothers me that I am so isolated	.72	.35	.29
14. I am sad because I don't have a loving relationship	.11	.14	.86
15. I am sad because there's no one I can confide in	.25	.57	.41
16. I wish I could share my life with more people	.52	.65	.13
17. I am unhappy because too many others view me with indifference	.72	.24	.11
18. I wish my social interactions were deeper	.51	.68	-.01
19. I long to get to know someone	.22	.79	.39
20. I long for someone to get to know me	.22	.79	.44
21. I am unhappy because I am not part of a social group	.78	.27	.05
22. It would be a relief if someone would take a personal interest in me	.41	.69	.35
23. I need more closeness to others in my life	.57	.63	.16
24. I wish I had as many friends as other people	.76	.38	-.06
25. I could really use some company	.61	.45	.34

Table 3. Bivariate Correlations

Study Variable	1	2	3	4	5	6
1. Adult PARQ: Mother	-					
2. Adult PARQ: Father	.42**	-				
3. Adult PAQ	.34**	.43**	-			
4. IPARLS	.30**	.42**	.73**	-		
5. De Jong Gierveld ELS	.28**	.35**	.68**	.83**	-	
6. UCLA Loneliness Scale: Version 2 subscale	.26**	.33**	.72**	.81**	.77**	-
<i>M</i>	37.74	41.27	87.41	35.05	17.16	16.48
<i>SD</i>	12.98	15.59	20.00	14.49	5.98	5.39
<i>Alpha</i>	.95	.96	.94	.96	.87	.90

** $p < .01$.

Table 4. Hierarchical Regression Analysis Using Overall Adult PAQ

Variable	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	β									
Age	-.09	.09	-.09	-.15	.09	-.15	-.20	.09	-.20	-.04	.07	-.04
Gender	2.94	3.55	.08	1.95	3.40	.05	2.29	3.16	.06	-.33	2.47	-.01
Adult PARQ: Mother				.36	.10	.32**	.18	.10	.16	.03	.08	.02
Adult PARQ: Father							.37	.08	.40**	.13	.07	.14
Adult PAQ										.47	.05	.65**

** $p < .01$.

Table 5. Hierarchical Regression Analysis Using Adult PAQ Subscales

Variable	Model 1			Model 2			Model 3		
	B	SE B	β	B	SE B	β	B	SE B	β
Age	-.09	.09	-.08	-.20	.09	-.20*	-.04	.07	-.04
Gender	2.94	3.55	.08	2.29	3.16	.06	-.31	2.43	-.01
Adult PARQ: Mother				.18	.10	.16	.03	.08	.02
Adult PARQ: Father				.37	.08	.40**	.17	.07	.18*
Self-adequacy							1.42	.44	.37**
Dependence							.85	.32	.19**
Emotional responsiveness							.96	.29	.26**
Emotional stability							.93	.41	.26*
Hostility/aggression							-.53	.38	-.13
Self-esteem							-.28	.55	-.07
Worldview							.03	.34	.01

* $p < .05$. ** $p < .01$.

Figures

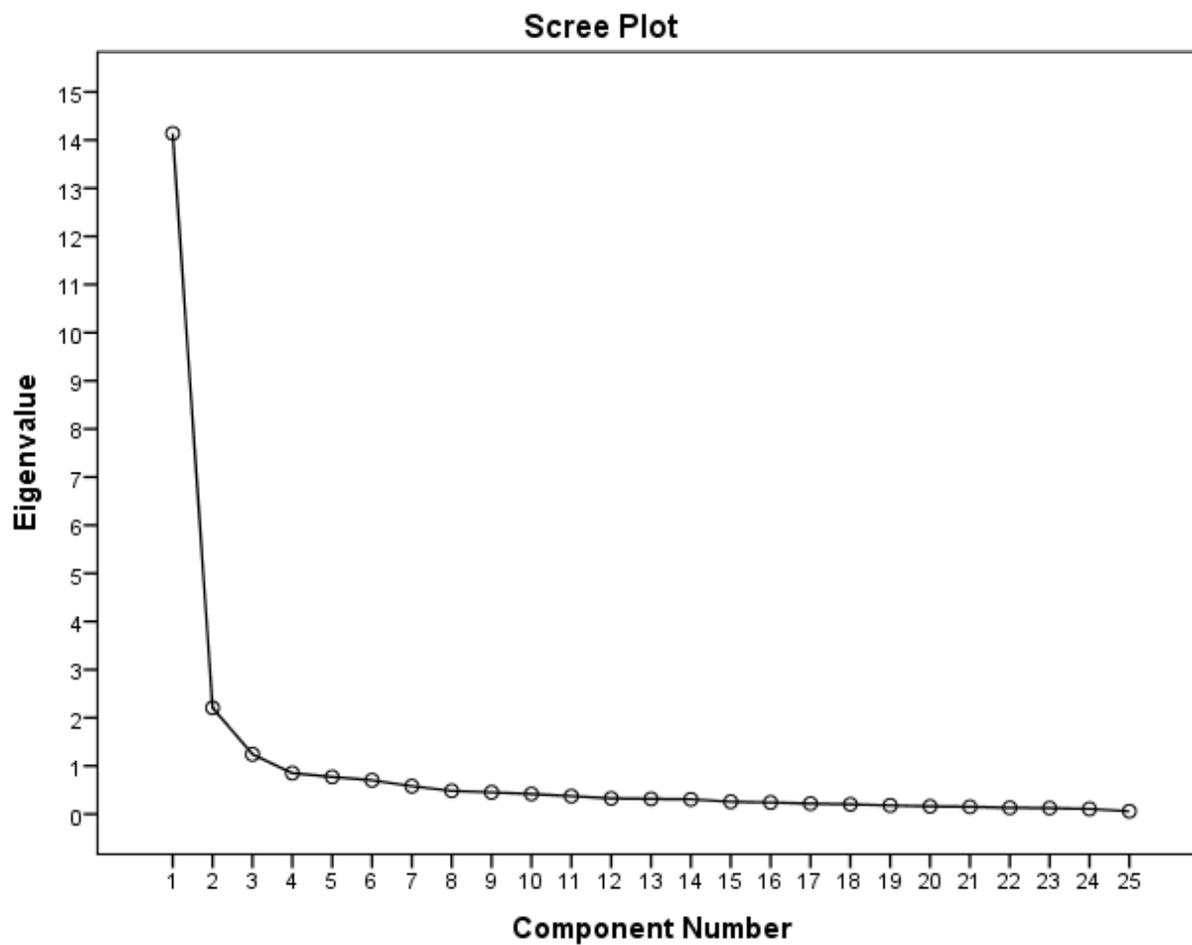


Figure 1. Principal component factor analysis for the initial IPARLS item pool.

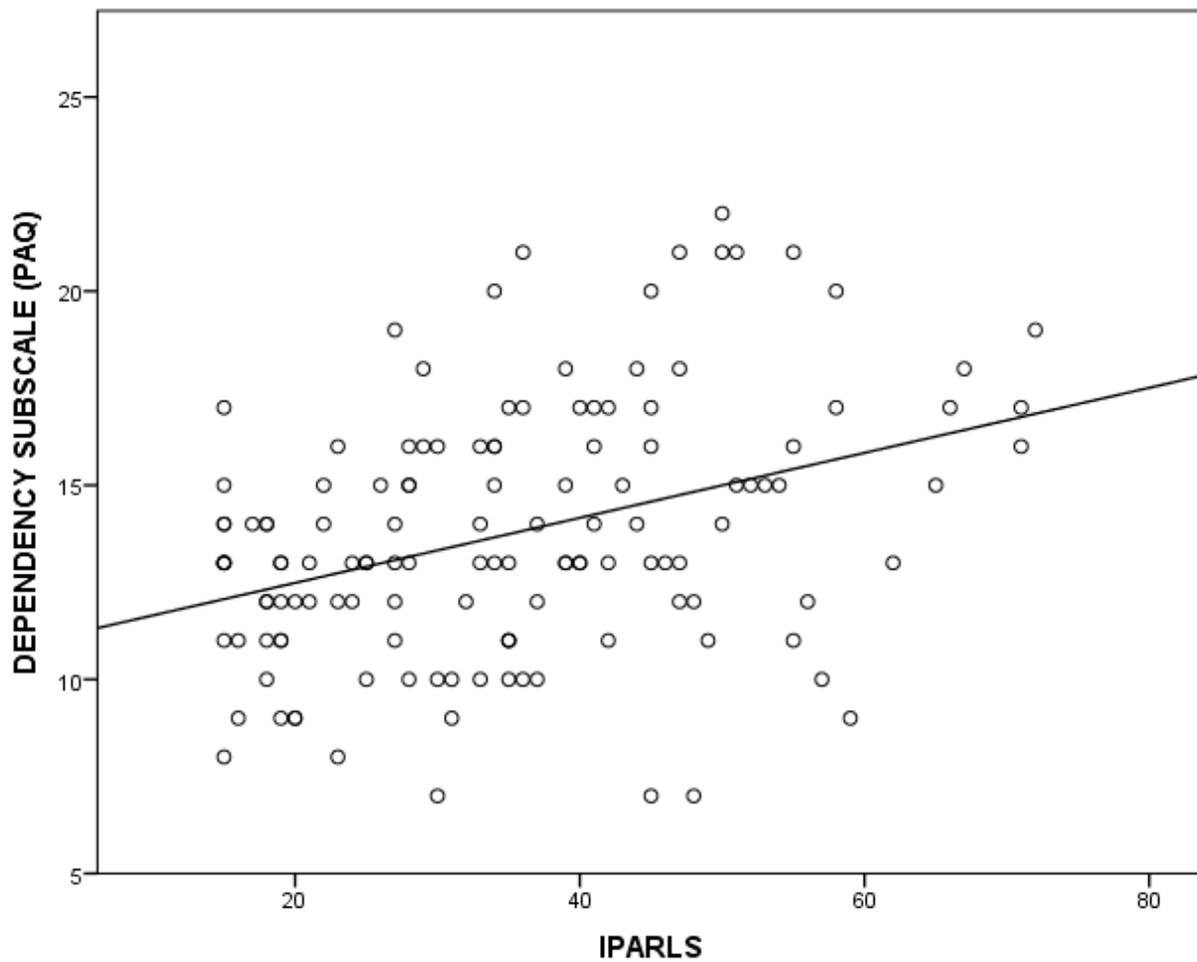


Figure 2. Scatterplot of the relation of loneliness to dependence.