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Identity formation and evaluation in adolescence and emerging adulthood: How is it associated with depressive symptoms and loneliness?

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Abstract

Background: Developing a personal identity is a challenging task throughout adolescence and emerging adulthood. In 2006, Luyckx and colleagues developed an identity model differentiating identity formation into exploration and commitment dimensions. Previous studies have documented associations between the identity dimensions and different aspects of mental health.

Objective: Based on Luyckx and colleagues five-dimensional identity model, the present study investigated associations between identity dimensions and intra- and interpersonal aspects of mental health.

Method: In total, 524 high school students (65 % female; mean age = 18.27; SD = 1.15) participated in a cross-sectional study measuring five identity dimensions and intra- and interpersonal aspects of mental health (depressive symptoms and loneliness). Correlation coefficients were calculated and hierarchical regression analyses were performed.

Results: Only two of the five identity dimensions: Identification with Commitment and Ruminative Exploration, were significantly associated with depression. None of the five identity dimensions were associated with loneliness.

Conclusions: The findings suggest that the identity dimensions are not specifically associated with feelings of loneliness but that Identification with Commitment and Ruminative Exploration may be key components in the development of depressive symptoms. Future studies exploring the associations of identity dimensions and multiple intra- and interpersonal aspects of mental health are recommended.

Keywords: identity formation; identity dimensions; mental distress; adolescence; emerging adulthood

Introduction

Developing a sense of identity is a core developmental task through adolescence and emerging adulthood (1, 2). In one of his classic writings, Erikson (1950) hypothesized that identity formation, especially identity confusion and a disorganized sense of self, play a critical role in mental health (3). As mental distress often begin in adolescence and emerging adulthood (4) and predict later psychiatric disorders (5, 6), it is crucial to understand the association between identity formation and mental health in these developmental periods.

Identity formation

As described by Erikson, identity formation is a tension between synthesis and confusion aiming to establish a strong coherent sense of identity, which provides an individual with a sense of continuity and sameness (2, 3). From Erikson's theoretical approach, Marcia [1966] extracted two dimensions of identity formation; exploration and commitment (7). Marcia´s operationalization has inspired decades of empirical work (8). In 2006, Luyckx and colleagues described identity formation and evaluation, and differentiated respectively exploration and

commitment into two separate dimensions and developed an integrative four-dimensional identity model (9, 10). Exploration included Exploration in Breadth; a concept originally proposed by Marcia (7), representing an active questioning of identity alternatives, and Exploration in Depth, which covers the in-depth evaluation of existing identity commitments (9, 10). Likewise, commitment included two dimensions: *Commitment Making* and *Identification with Commitment*. Commitment Making, in line with Marcia's notion of commitment (7), represent an adhering to and implementation of goals and values. Identification with Commitment represents the internalization of choices and commitments that one has enacted (9, 10). Because exploration involves trial and error, Luyckx et al. expanded the original four-dimensional identity model with a Ruminative Exploration dimension (11). This fifth dimension describe a dysfunctional dimension of exploration likely to hinder engagement in commitments. The five-dimensional identity model has been confirmed in previous studies (12, 13). Moreover, studies support the notion that the commitment dimensions and the adaptive exploration dimensions are positively interrelated (11, 13-15). Furthermore, Ruminative Exploration has been found to be negatively associated with the commitment dimensions and positively associated with the adaptive exploration dimensions (11-13, 15).

Mental distress in adolescence and emerging adulthood

Worldwide, mental distress in adolescents and emerging adults is a public health challenge (4). Mental health can be defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community (16). Mental distress (defined as a decreased level of mental health) embodies both intrapersonal and interpersonal aspects and previous studies have demonstrated the coexistence of different intrapersonal and interpersonal aspects of mental distress (17, 18). Depressive symptoms (e.g., depressed mood, feelings of guilt and worthlessness, feelings of helplessness, and hopelessness [19]) is an intrapersonal aspect of mental distress. In contrary, loneliness (often defined as a negative, distressing emotional response to a discrepancy between one's desired and actual social relationships [20]) is an important interpersonal aspect of mental distress. Intrapersonal and interpersonal aspects of mental distress often coexist and has a reciprocal association (17, 18). In a literature review from 2006 it has been suggested, that even though depression and loneliness are two distinct phenomena they have some common features (17). In the same review, depression is described as a global and heterogeneous condition with multiple domains, whereas loneliness is limited to dissatisfaction with interpersonal aspects (17). The complexity emphasizes the importance to investigate both aspects of mental distress in order to explore mental distress and identity formation.

Identity formation and evaluation associated with mental distress

Luyckx and colleagues have theorized that the commitment dimensions are negatively associated with mental distress, whereas the adaptive exploration dimensions are unrelated to mental distress (9-11). Moreover, Ruminative Exploration is expected to be associated with a higher level of mental distress (11). Previous studies have confirmed the hypothesized associations between identity dimensions and intrapersonal aspects of mental distress such as anxiety and depression (12, 15, 21). However, few studies have investigated the associations between identity dimensions and interpersonal aspects of mental distress such as loneliness. A recent cross-national study examined associations between identity dimensions and two different types of loneliness (parent-related loneliness and peer-related loneliness) in samples of Italian and Belgian adolescents (22). The study found, that the adaptive identity dimensions were negatively associated with loneliness. The associations were mostly with parent-related loneliness and predominantly found in the Italian sample. On the other hand, Ruminative Exploration was positively associated with peer-related loneliness in both samples.

The five-dimensional identity model presented by Luyckx and colleagues includes explorative and commitment processes involving both intrapersonal and interpersonal elements (11). The inclusion of both intrapersonal and interpersonal elements underlines the complexity of the model, and stress the importance of both intrapersonal and interpersonal aspects of the identify formation process. This urges an exploration of the associations between identity dimensions and intrapersonal and interpersonal aspects of mental distress. However, to the best of our knowledge, no study has yet investigated these associations in one sample.

In the present study, we explore the associations between identity dimensions and an intrapersonal aspect of mental distress (i.e., depressive symptoms) and an interpersonal aspect of mental distress (i.e., loneliness) in adolescence and emerging adulthood. Furthermore, we also explore the associations between specific identity dimensions and mental

distress after controlling for demographic factors, the remaining identity dimensions, and the other aspect of mental distress. Adjusting for the other aspect of mental distress, we assess the unique associations between the identity dimensions and the different aspects of mental distress. In accordance with prior theories and studies (9-11), it is hypothesized that:

- The two commitment dimensions are uniquely negatively associated with both depressive symptoms and loneliness.
- Ruminative Exploration is uniquely positively associated with both depressive symptoms and loneliness.

Methods
Procedure
The present cross-sectional study was conducted among Danish high school students in 2015. The Danish high schools offer courses following 9 or 10 years of education in primary and lower secondary school, and a majority of Danish adolescents (almost 75 %) are enrolled in a high school (23). Ten high schools were invited to participate in the study; three declined to participate due to other activities. The remaining seven high schools participated with between two and six classes. The participating classes represented all high school levels (i.e., from the first to the third year).

The aim of the study was presented to the principals of the participating schools. The questionnaires were completed during a regular class lesson monitored by either the first or second author as well as a high school teacher. Standardized instructions emphasized confidentiality and the importance of discretion. Furthermore, the students were informed in writing about the purpose of the survey and that their voluntary participation and the return of the questionnaire constituted implied consent.

Participants
In total, 533 students were invited to participate in the study. Seven students declined to participate and two questionnaires were excluded due to unusable data. Thus, the final sample consisted of a total of 524 students aged 16 to 23 years (M = 18.27; standard deviation = 1.15; participation rate: 98 %). Sixty-five percent of the students were female. Furthermore, 88 % of the students lived with a parent/parents and 36 % were in a romantic relationship. The large majority of the students (91%) were adolescents (i.e., between 16 and 19 years old), whereas the remaining students could be characterized as emerging adults (i.e., 20 to 23 years old). The non-traditional age of some of the high

school students reflects that one type of the high school courses attracts students that previously have dropped out of a high school course or who have been working after secondary school before attending high school.

Measurements
Identity dimensions
The Dimensions of Identity Development Scale [DIDS (11)] was used to assess five dimensions of identity formation and evaluation: Commitment Making (CM), Identification with Commitment (IC), Exploration in Breadth (EB), Exploration in Depth (ED), and Ruminative Exploration (RE). The DIDS consists of 25 items and each dimension is assessed by five items. The items are rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Sample items includes: "I know which direction I am going to follow in my life" (CM), "I sense that the direction I want to take in my life will really suit me" (IC), "I am thinking about different lifestyles that might be good for me" (EB), "I think about whether the aims I already have for life really suit me" (ED), and "I keep wondering which direction my life has to take" (RE).

Prior to data collection, the English version of the DIDS was translated into Danish. The translation was conducted independently by two of the authors after which potential differences in translations were discussed until consensus was reached. Afterwards, an independent bilingual person with English as native language back-translated the Danish version of the scale. The original and the back-translated version of the scale were compared and matched and items that did not fully match the original version were revised. Moreover, the Danish version of the DIDS was tested in a qualitative pilot-study using two focus groups of high school students. The pilot-study did not result in further changes. Finally, an explorative factor analysis (principal axis factor analysis with oblique, promax rotation) was performed. The eigenvalues indicated a five-factor solution in accordance with the Kaiser criterium (eigenvalue > 1) and the scree plot indicated a four- or five-factor solution. Subsequently, non-redundant residuals indicated a five-factor structure (four-factor model: 12% vs. five-factor structure: 7%). Based on these indications, the five-factor solution was considered optimal. The five-factor structure was identical to the original five-dimensional identity model theorized by Luyckx and colleagues (11). However, the internal consistency of the Danish version of the subscales varied substantially (CM: a = 0.92; IC: a = 0.88; EB: a = 0.79; ED: a = 0.56; RE: a = 0.81). Similar internal consistency-pattern have been found in previous studies (24, 25).

Depressive symptoms

Depressive symptoms were assessed using the 20-item Center for Epidemiological Studies Depression scale [CES-D scale (19)]. The CES-D scale measures various somatic, psychological, and cognitive symptoms within the previous week. Subjects responded on a 4-point Likert scale from 0 (seldom or not at all) to 3 (most of the time). A sample item is: "During the last week, I felt depressed" and higher scores indicate more depressive symptoms. The CES-D scale has been validated in adolescent populations (26). Furthermore, the CES-D scale has been translated into Danish by Wurtzen and colleagues (27) and demonstrated high internal consistency in the present study ($a = 0.90$).

Loneliness

Loneliness was assessed using a validated Danish version of the 20-item UCLA Loneliness Scale [UCLA (28, 29)]. The UCLA is the most frequently used standardized self-report scale for measuring loneliness in an adolescent population measuring general feelings of loneliness (30, 31). The items are rated on a 4-point Likert scale from 1 (never) to 4 (always). A sample item is: "No one really knows me well". Higher scores indicate higher loneliness. The internal consistency of the scale was high ($a = 0.91$).

Data analyses

Data were analyzed using SPSS version 22.0. Correlation coefficients were calculated to assess the associations between the identity dimensions and the aspects of mental distress. Hierarchical regression analyses were performed with depressive symptoms and loneliness as the dependent variables. In block 1 gender (0 = male; 1 = female), age, living with parents (0 = no; 1=yes) and being in a romantic relationship (0 = no; 1=yes) were included as control variables because previous research has associated demographic factors with depressive symptoms and loneliness. In block 2, the five identity dimensions were included to estimate the associations between the different identity dimensions and the two different aspects of mental distress. Finally, in block 3, we expanded the analysis by controlling for the effect of the other aspect of mental distress.

Results

Descriptive statistics (i.e., mean and standard deviation) and intercorrelations among the measures used are presented in Table 1. Most of the associations between the identity dimensions were in accordance with the theoretical foundation and previous research. The two commitment dimensions (CM, IC) were highly positively correlated. Likewise, the three exploration dimensions (EB, ED, RE) were positively correlated, although only weakly ($r = 0.20$ to 0.30). As expected the two commitment dimensions (CM, IC) were highly negatively correlated with the ruminative exploration dimension (RE). The Exploration in Depth dimension was weakly positively correlated with the two commitment dimensions (CM, IC). As hypothesized, the two aspects of mental distress (depressive symptoms and loneliness) were highly correlated.

TABLE 1. Correlations among the study measures and descriptive statistics.

Subscale	2	3	4	5	6	7	Mean	SD
1. Commitment Making	.70**	-.05	.20**	-.50**	-.19**	-.15**	16.23	4.64
2. Identification with Commitment		.01	.14**	-.51**	-.31**	-.26**	17.08	3.83
3. Exploration in Breadth			.29**	.30**	.05	.02	19.49	2.99
4. Exploration in Depth				.20**	.08	.014	16.79	2.95
5. Ruminative Exploration					.36**	.26**	15.10	4.32
6. Depressive Symptoms						.67**	14.38	9.67
7. Loneliness							36.53	9.22

Note. SD = Standard Deviation
*$p \leq .05$, **$p \leq .001$

Results of the hierarchical regression analyses, expressed as standardized regression coefficients, can be seen in Table 2 and Table 3. The hypothesed unique associations between the specific identity dimensions (Commitment Making, Identification with Commitment, and Ruminative Exploration) and both aspects of mental distress (depressive symptoms and loneliness) were only partially confirmed.

In block 1, female students reported a higher level of depressive symptoms and loneliness. Furthermore, older age and not being in a romantic relationship predicted loneliness. When adding the identity dimensions in block 2, female gender and not

living with a parent/parents predicted depressive symptoms and loneliness, whereas students not being in a romantic relationship reported higher levels of loneliness. Identification with Commitment remained negatively associated with depressive symptoms and loneliness and Ruminative Exploration remained positively associated with depressive symptoms and loneliness. The models including the demographic variables and the five identity dimensions accounted for 24 % of the variance in depressive symptoms and 14 % of the variance in loneliness. When including the other aspect of mental distress in block 3, loneliness predicted depressive symptoms and vice versa. Furthermore, Identification with Commitment only remained negatively associated with depressive symptoms. Likewise, Ruminative Exploration only remained positively associated with depressive symptoms. The final models accounted for 53 % of the variance in depressive symptoms and 47 % of the variance in loneliness.

TABLE 2. Hierarchical regression analysis with depressive symptoms as dependent variable

Variable	Step 1 β	Step 2 β	Step 3 β
Gender	.275**	.252**	.184**
Age	.089	.072	.020
Living with parents	.062	.095*	.032
In romantic relationship	.051	.042	-.015
Commitment making		.120	.048
Identification with commitment		-.228**	-.097*
Exploration in breadth		-.032	-.020
Exploration in depth		-.002	.021
Ruminative exploration		.306**	.173**
Loneliness			.583**
Model R^2 (%)	9	24	53
ΔR^2 (%)		15**	29**
F(df)	$F(4,448)=10.73**$	$F(9,443)=15.35**$	$F(10,442)=49.69**$

Note. β = standardized regression coefficients
*$p \leq .05$, **$p \leq .001$

TABLE 3. Hierarchical regression analysis with loneliness as dependent variable

Variable	Step 1 β	Step 2 β	Step 3 β
Gender	.132*	.117*	-.048
Age	.105*	.089	.042
Living with parents	.080	.109*	.046
In romantic relationship	.106*	.097*	.069
Commitment making		.124	.045
Identification with commitment		-.224**	-.074
Exploration in breadth		-.020	.001
Exploration in depth		-.038	-.037
Ruminative exploration		.228**	.027
Depressive symptoms			.656**
Model R^2 (%)	4	14	47
ΔR^2 (%)		10**	33**
F(df)	$F(4,448)=5.02**$	$F(9,443)=8.09**$	$F(10,442)=39.14**$

Note. β = standardized regression coefficients
*$p \leq .05$, **$p \leq .001$

Discussion

In the current study, the associations between five identity dimensions and respectively depressive symptoms and loneliness were examined. Identification with Commitment was negatively associated with both aspects of mental distress, whereas Ruminative Exploration was positively associated with both aspects of mental distress (independent of demographic variables). This finding could indicate that Identification with Commitment and Ruminative Exploration are key dimensions in the identity formation and evaluation processes with regard to mental distress. However, when controlling for the other aspect of mental distress, Identification with Commitment and Ruminative Exploration were associated with depressive symptoms but not with loneliness. Even though no causality can be claimed, these findings suggest that the identity dimensions are not uniquely associated with feelings of loneliness. However, specific identity dimensions may be key components in the development of depressive symptoms. This interesting finding may reflect that rumination, which is the key element in the Ruminative Exploration dimension, also is an important component in depression (32). This might imply a common element in Ruminative Exploration related to both identity development and depression.

The differences in associations between the identity dimensions and respectively depressive symptoms and loneliness support the idea that depression and loneliness are two distinct phenomena as proposed in a literature review by Heinrich and Gullone (17). It is possible that some of the unique features of depression has a specific association with the Identification with Commitment dimension. However, the design of the present study hinders conclusions about temporality or causation. We are aware of no prior studies that have examined the associations between loneliness and identity dimensions while controlling for depression, and so this novel finding requires replication in a fully representative sample and preferably using longitudinal data. The present findings indicate, that no identity dimensions are associated with loneliness when controlling for depressive symptoms. Contrary, a previous study found associations between identity dimensions and loneliness (22). However, the study did not control for intrapersonal distress, which could impact these associations. Our present findings could suggest that these associations might in fact reflects associations between identity dimensions and intrapersonal aspects of mental distress (e.g., depressive symptoms). However, further exploration of the complex associations between identity dimensions and different aspects of mental distress is needed before any conclusions can be made.

The present study has a number of limitations which should be acknowledged. First, the measure of the Exploration in Depth dimension had a rather poor internal consistency ($a = 0.56$), and the results should therefore be handled with caution. Previous studies have found the Exploration in Depth dimension to have the lowest internal consistency among the five identity dimensions (11, 15). However, it is possible that the present findings indicate specific challenges with the Danish version of the scale. Furthermore, a recent study by Mastrotheodoros and Motti-Stefanidi suggested that Exploration in Depth should be divided into two different dimensions (33). However, this proposal needs more investigation. Second, the study was limited by the use of cross-sectional data. Future longitudinal research must clarify the directions to consider potential reciprocal effects between identity dimensions and the different aspects of mental distress. Third, the study was limited by the use of single informants and self-report data. Fourth, socioeconomic status was not measured and the potential effect of this was therefore not assessed. Finally, the investigation of only two aspects of mental distress was a clear limitation of the study; the use of multiple measures of both intrapersonal and interpersonal aspects of mental distress will strengthen future studies.

Clinical significance

The present study contributes to the exploration of the associations between the processes of identity formation and evaluation and aspects of mental distress. To the best of our knowledge, this study is the first of its kind to investigate how identity dimensions are associated with both intrapersonal and interpersonal aspects of mental distress. These findings suggest that the identity dimensions are not specifically associated with feelings of loneliness. However, Identification with Commitment and Ruminative Exploration may be key components underlying the development of depressive symptoms. This knowledge can be important in the effort of helping young people with mental distress. Moreover, the results of this study highlight the need for awareness of the complex associations between identity formation and evaluation and both intrapersonal and interpersonal aspects of mental distress. Future studies should explore the associations of identity dimensions and multiple intrapersonal and interpersonal aspects of mental distress. This will increase our understanding of a healthy identity formation and evaluation in adolescence and emerging adulthood.

Conflict of Interest Statement

The authors declare that they have no conflict of interest.

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