

Review article

Confidence as a Predictor of Sexual and Reproductive Health Outcomes for Youth

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Abstract

Purpose: To assess the association between four positive youth development (PYD) constructs of confidence and adolescent sexual and reproductive health (ASRH) outcomes.

Methods: We searched nine online databases to locate behavioral research that examined the association between four constructs of confidence (belief in the future, self-determination, clear and positive identity, and self-efficacy) and ASRH outcomes (e.g., ever had sex, condom use, contraception use, number of partners, pregnancy/birth, and sexually transmitted infection). Findings were coded as “protective,” “risk,” or “no association.” The presence of at least two longitudinal studies reporting consistent significant associations for at least one ASRH outcome indicated evidence for a protective or risk association.

Results: We found evidence to support two of the four PYD constructs of confidence (belief in the future and self-determination) as protective factors for ASRH outcomes. Evidence was insufficient to draw conclusions about clear and positive identity as a protective factor, and was mixed for self-efficacy. Measures of confidence varied considerably across the studies reviewed, reflecting varying definitions; often, the measures used had limited information on reliability. Few longitudinal investigations were identified, and available studies were inconsistent in how they examined the association between the PYD constructs and ASRH outcomes. Evidence for most constructs was insufficient to identify their influence on specific sub-groups of youth.

Conclusions: Despite the need for additional research, this review suggests that belief in the future and self-determination are promising protective factors. Further research is needed to better understand the potential for self-efficacy and clear and positive identity as protective factors. Published by Elsevier Inc.

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As children enter adolescence, they are increasingly likely to engage in sexual risk behaviors [1–5]. To improve the social, academic, and health outcomes of young people, it is critical to provide them with knowledge, skills, confidence, and motivation to make healthier behavior choices [6–8].

Traditionally, public health has focused on reducing risk behaviors that can lead to HIV, sexually transmitted infections (STI), and unintended pregnancy among adolescents. However, a growing body of research indicates that increasing access to services and programs that enhance protective factors can supplement the benefits of risk reduction approaches for improving adolescent sexual and reproductive health (ASRH) outcomes [6, 9]. Positive youth development (PYD) programs seek to strengthen protective factors and to increase young people’s connections, competence, character, and confidence [10]. There are several ways to conceptualize PYD; for example, the Search

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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Institute's 40 Assets [11] identifies 20 internal and 20 external assets that can enhance healthy development. We chose to organize the PYD constructs identified in a comprehensive published data review by Catalano et al into four of Pittman's Cs (connections, competence, character, confidence) [10, 12].

The review by Catalano et al identified four confidence constructs: *belief in the future*, *self-determination*, *clear and positive identity*, and *self-efficacy* [13]. Our study reviews the evidence for whether these four confidence constructs are protective factors for ASRH outcomes. Other articles in this supplement assess the evidence for the other PYD goals of connectedness, competence, and character.

As a confidence construct, *belief in the future* is defined as a young person's hope and optimism about possible outcomes in his or her life. For this review, two sub-constructs of *belief in the future* were identified, which were representative of the majority of research conducted in this area. These included *educational aspirations* (variables related to how much education respondents believed they would attain) and *future time perspectives* (variables such as employment or career expectations, hopelessness, and optimism). Researchers have theorized that young people who have hope for their future are more likely to apply themselves at school and practice healthy behaviors than those who lack a positive view of their future [14]. Also, research shows that young people who believe in a positive future for themselves are more likely to be well adjusted in school, have stronger self control, be better able to cope with stress, and perceive themselves as competent [15].

Self-determination is characterized by the choices people make on their own and by their ability to take action consistent with those choices [16]. *Self-determination* is often measured by the degree to which a person feels an internal locus of control and believes that what happens results from his or her own actions rather than external forces, such as fate, luck, or adherence to noninternalized rules. When young people with high *self-determination* make a behavioral choice, such as abstaining from sex or using a condom, theoretically, they make the choice because they perceive it to be important to their lives rather than because they feel forced to make the choice. They also believe that important adults in their lives model and support the behavior and that choosing the behavior helps meet their innate needs for competence, autonomy, and relatedness [16]. In this study, we consider *self-determination* in the context of the individual, although some nonwestern cultures define *self-determination* by group values rather than by the individual [17]. Young people who are empowered and autonomous and who can think independently have a strong sense of *self-determination*. For this review, all of the identified studies used measures of locus of control, and so *self-determination* was operationalized as an internal locus of control.

A *clear and positive identity* is a coherent sense of self that develops from an examination of beliefs and experiences, a reconciliation of conflicting self-views, and a commitment

to a relatively stable set of self-images and roles [6, 18–20]. According to Erikson [18, 19], identity formation is an essential task during adolescence, and a coherent identity helps youth interpret their world and guides their decisions and behaviors. Theoretically, adolescents who have clear and positive self-views are motivated to act in constructive ways to maintain their positive identity [21]. Research suggests that a less coherent sense of identity is linked to problematic behaviors, including risky sexual behavior [20, 22].

Theoretical and empirical published data indicate the importance of considering both the stage of identity development and domain-specific identities. Marcia's identity status model describes the stages through which persons progress as they explore and commit to an identity; this model suggests that people commit to distinct identities in specific identity domains (e.g., sexual, social, racial/ethnic) [20]. The stage of identity development has been found to influence the direction of the relationship between identity and behavior; a stronger coherent identity is associated with adaptive behavior [20, 22]. Archer notes the benefit of examining various domains of identity because these identity frameworks influence behavior and decision-making in distinct ways [23]. Accordingly, for this review, a *clear and positive identity* includes adolescents' stage of identity development as well as varying identity domains. Five sub-constructs of clear and positive identity were identified for this review, which accounted for the majority of the research in this area. The sub-constructs include *overall identity* (broad measures of identity and self-image, one study measuring "jock" identity was included in this sub-construct), *body image* (variables including comfort with physical development, perception of attractiveness, or satisfaction with looks), *racial/ethnic identity* (variables related to acculturation, identification with one or more cultures), *sexual identity* (whether the person identifies as heterosexual, homosexual, bisexual, or is unsure), and *social identity* (variables related to popularity, perception of being socially competent, or having a good personality).

Self-efficacy is a person's perception of being capable of completing the actions required to achieve his or her goals [12]. Bandura stated that "*self-efficacy* beliefs determine how people feel, think, motivate themselves and behave"; he identified these beliefs as important determinants of motivation and action or inaction [24]. Schunk more concisely defined *self-efficacy* as personal judgments of performance capabilities in a given domain of activity [25]. Research suggests that persons with high perceived *self-efficacy* set higher goals for themselves and are more committed to achieving them than those with perceived low *self-efficacy* [26]. Four sources of *self-efficacy* include mastery experiences, vicarious learning, social persuasion, and physical or emotional ease [24, 27, 28]. *Self-efficacy* has been a particular focus in the field of ASRH; strengthening adolescents' *self-efficacy* to use condoms and refuse unwanted sex is a common objective of interventions. There is significant

heterogeneity within and between studies assessing *self-efficacy*. For the purposes of this review, two *self-efficacy* sub-constructs were used to summarize the findings, including *nonsexual self-efficacy* (such as general self-efficacy, social self-efficacy, or self-efficacy to refuse alcohol or drug use) and *sexual self-efficacy* (such as self-efficacy to refuse unwanted sex or negotiate condom use). When specific *sexual self-efficacy* domains were clearly described by the authors, these domains were used to aid in the interpretation of the results.

Adolescence is a critical developmental stage when young people establish patterns of behavior and make lifestyle choices that affect their current and future health. Many people believe that young people who have high levels of *confidence* are more likely to engage in adaptive behaviors related to health and other aspects of their lives than those having low levels of *confidence* [29]. Using theory and previous empirical research, we hypothesized that adolescents with a strong *belief in the future*, *self-determination*, *clear and positive identity*, and *self-efficacy* will have significantly better sexual and reproductive health outcomes than those with low *confidence*. This review analyzes associations between four constructs of *confidence* and ASRH outcomes. Given the variability of the extent to which each *confidence* sub-construct has been studied, we chose to conduct a broad and descriptive review to include the full range of relevant research and to identify promising leads in understudied areas.

Methods

A systematic literature review of nine databases (i.e., PsychINFO [Ovid], Cumulative Index to Nursing and Allied Health (CINAHL), Latin American and Caribbean Literature on Health Sciences Database (LILACS), Cochrane Reviews, Education Resources Information Center [ERIC], Sociological Abstracts, Social Services Abstracts, EMBASE, and Medline) was conducted to identify nonintervention behavioral research published during 1985–2007. The search terms for the behavioral literature included variations of the Boolean terms for *sexual behavior* (e.g., sex, coital, intercourse), *sexual and reproductive health outcomes* (e.g., pregnancy, sexually transmitted infections, HIV), *adolescence* (e.g., youth, teen, high school), and terms for *belief in the future*, *self-determination*, *clear and positive identity*, and *self-efficacy*. Search terms and selection criteria were adapted from a search strategy established by Catalano et al [12]. For example, for *belief in the future*, search terms included words addressing concepts such as hope, aspirations, or goals; for *self-determination*, sample search terms included autonomy, empowerment, and internal locus of control. Search terms for *clear and positive identity* captured different identity domains (e.g., occupational, racial/ethnic, or gender) as well as body image. Terms used to search for *self-efficacy* focused on different kinds of skills, such as refusal and mastery skills (list of exact search terms is available on request). In addition to searching these electronic databases,

we reviewed the bibliographies of located articles and of recent review articles related to ASRH.

To be included in this analysis, a study had to (1) examine an association between a *confidence* construct and an ASRH outcome (Table 1), (2) use a sample in which the majority of participants were 10–20 years of age when the outcomes were assessed, (3) include either the general population or youth at risk (i.e., incarcerated and parenting teens were included, but institutionalized psychiatric populations were excluded), (4) be published in a peer-reviewed research English language journal, (5) be conducted in North, Central, or South America, Europe, Australia, or New Zealand, and (6) have an adequate study design. Our standards for adequate study design included a sample size >100 (100 for significant findings and 200 for nonsignificant findings) and use of multivariate analyses in assessing the association between the PYD construct and ASRH outcome(s) [30]. Articles that met inclusion criteria were summarized and categorized according to the construct(s) and outcomes assessed. To help organize and understand the data, we conducted a qualitative assessment of the published data to identify sub-constructs. Findings were then identified and tabulated and were counted if they tested a direct association between a construct and an ASRH outcome for a group or subgroup. The commonly accepted level of $p < .05$ was used to indicate statistical significance. (The article by House et al in this issue more fully explains the review methods used [31]).

Direct associations between the PYD constructs and ASRH outcomes were classified as *protective*, *risk*, or having *no association*. Findings were classified as *protective* if the presence or high score of the PYD construct was associated with a decreased ASRH outcome or if the absence or low score of the PYD construct was associated with an increased ASRH outcome. Findings were classified as having a *risk* association if the presence or high score of the PYD construct was associated with an increased ASRH outcome. Each reported comparison in which the PYD construct showed no significant association with ASRH outcomes was categorized as having *no association*. Several studies resulted in multiple findings because they assessed multiple ASRH outcomes, used multiple measures to assess the confidence constructs, or stratified results by subgroup. Studies that examined an indirect relationship between the confidence construct and an ASRH outcome were not tabulated with the direct associations, but were included in the interpretation of the body of evidence considered in this investigation. One reviewer coded and summarized study findings, and another reviewer cross-checked the summary of the findings to ensure accuracy of final counts. Findings were organized according to the ASRH outcome measured. If the outcome category was unclear, the best categorization for each finding was determined by the way that researchers operationalized the ASRH outcome measure for the study.

A standard of evidence requiring consistent findings indicating a protective association or a risk association from at

Table 1
Adolescent sexual and reproductive health outcomes included in the review

Category	Outcomes included in the category
Ever had sex	Measures of coital status, abstinence status, sexual experience, and ever engaged in oral, anal, or vaginal sex
Recent sex/current sexual activity	Measures of sex in the past months or current sexual relationships
Early sexual debut	Measures of age of onset and early sexual initiation (based on authors definition)
Use of contraception	Measures of use of hormonal and non-condom contraceptive in the past or present and dual method use
Use of condom	Measures of past or present condom use, unprotected sex in past or present, condom use frequency, safe sex, and refusal of unsafe sex, unless protection/safety is specified as non-condom or dual method
No. sexual partners	Measures of the no. past or present oral, anal, or vaginal sex partners
Frequency of sex	Measures of past or present frequency of oral, anal, or vaginal sex
Sexual risk index	Measures that address multiple sexual health behaviors or outcomes, such as HIV risk behavior or sexual risk taking
Contracted an STI	Measures that used self-reported or clinic-based reports of sexually transmitted infection
Pregnancy/birth	Measures that used self-reported or clinic-based reports of pregnancy, regardless of pregnancy outcome, or birth
Intention	Measures of intent to have sex, to be abstinent, to use condoms or other birth control, or to achieve any of the behaviors or outcomes listed above

least two longitudinal studies was developed and applied to findings for each *confidence* sub-construct. The standard of evidence focused on longitudinal rather than cross-sectional research because longitudinal studies are able to establish time order and provide more valid information about associations between sub-constructs and behavioral outcomes. Thus, requirement of at least two longitudinal studies ensured stronger evidence of a causal association between the *confidence* sub-construct and the behavioral outcome. Given that this is the first systematic review to relate *confidence* to ASRH, we did not want to overlook associations which may be promising for future research. Thus, this standard of evidence met the need to apply a degree of rigor as well as to make progress in understudied areas of *confidence*.

If findings from two or more separate longitudinal studies showed a significant association between a particular confidence construct and at least one ASRH outcome, we considered that evidence existed to characterize that confidence construct as a protective or risk determinant. When two or more longitudinal studies revealed significant findings in both risk and protective directions, the evidence was considered mixed and represented an area in which no clear association could yet be determined. The purpose of this review was to identify significant *protective* and *risk associations* between PYD constructs and ASRH outcomes; therefore, we did not factor in findings classified as having *no association* into the standard of evidence. However, we included them in our review because these findings provide important information about the association between confidence and ASRH outcomes. After an overview of the pattern of findings was provided, we examined the measurements used and the study characteristics to further interpret the findings. We examined whether results differed by subgroup (gender, race/ethnicity, and age); we also examined results of bivariate analyses, and considered the quality of the measures used.

Results

Results are presented for the PYD constructs of *belief in the future*, *self determination*, *clear and positive identity*,

and *self-efficacy*. An evidence table providing detailed descriptions of each article (e.g., sample characteristics, measures, and findings) is available on request from the lead author.

Belief in the future

A total of 32 studies were identified that investigated the association between *belief in the future* and an ASRH outcome (15 longitudinal and 17 cross-sectional); one of these studies also examined indirect effects of *belief in the future* and ASRH.

The measures used to assess *belief in the future* varied, resulting in two sub-constructs (i.e., *educational aspirations* and *future time perspective*) (Table 2). Most studies ($n = 23$) that assessed *belief in the future* used measures of *educational aspirations* (i.e., how much education respondents believed they would attain). Nine studies used measures of *future time perspectives*, such as employment expectations, hopelessness, and optimism, to assess the effect of *belief in the future*. Of studies that examined *educational aspirations*, 11 used a single question, four failed to provide the scales' psychometric properties, and one reported a Cronbach's alpha of .82. Two studies that measured *future time perspective* failed to provide information on the scales' psychometric properties; four studies included Cronbach's alphas for scales measuring future aspirations, and only one reported an alpha greater than .70 (range: .67–.79). Two additional studies included in the sub-construct *future time perspective* used measures of optimism, with alphas of .70 and .78, and one study used the Hopelessness Scale for Children ($\alpha = .82$) [63].

Overall, our analysis found evidence that *belief in the future* can be a protective factor for ASRH outcomes; at least two longitudinal studies demonstrated protective associations with two ASRH outcomes (i.e., *early sexual debut* and *pregnancy/birth*). In addition, no studies demonstrated a risk association. However, when findings were examined by sub-constructs and specific ASRH outcomes, results were less consistent.

Table 2
Belief in the future: associations with adolescents' sexual and reproductive outcomes

	Finding/relationship		
	Protective association	Risk factor association	No association
Educational aspirations (15 longitudinal and eight cross-sectional studies)			
Ever had sex	1 ^a [32]		4 ^a [32–34] 4 ^b [35–37]
Recent sex/current sexual activity			1 ^b [38]
Early sexual debut ^c	4 ^{a,c} [39, 40] 4 ^b [42]		8 ^a [32, 39–41] 6 ^b [42–44]
Use of condom			1 ^a [33] 1 ^b [43]
No. sexual partners			1 ^a [33] 1 ^b [43]
Frequency of sex	2 ^a [45] 1 ^b [46]		3 ^a [33, 45] 1 ^b [43]
Pregnancy/birth ^c	13 ^{a,c} [47–52]		7 ^a [47, 48, 53, 54]
Subtotal of findings ^c	20 ^{a,c} 5 ^b	0	24 ^a 14 ^b
Future time perspective (one longitudinal and 10 cross-sectional studies)			
Ever had sex	4 ^b [55–58]		4 ^b [35, 55–57]
Recent sex/current sexual activity	2 ^b [59]		1 ^b [58]
Early sexual debut	1 ^b [60]		2 ^a [41] 1 ^b [58]
Pregnancy/birth	2 ^b [59]		
Use of condom	1 ^b [61]		
Use of contraception			1 ^b [58]
Intention to use condom			1 ^b [62]
Intention to get pregnant	2 ^b [59]		
No. sexual partners			1 ^b [58]
Subtotal of findings	12 ^b	0	2 ^a 9 ^b
Belief in the future: overall findings ^c	20 ^{a,c} 17 ^b	0	26 ^a 23 ^b

Numbers in brackets are reference to studies where findings were observed.

^a Indicates the number of longitudinal findings.

^b Indicates the number of cross-sectional findings.

^c Indicates that it met the standard of evidence (i.e., findings from *at least two* longitudinal studies provided evidence for a protective or risk association).

Four findings from two longitudinal studies found *belief in the future*, operationalized as *educational aspirations*, to be protective against *early sexual debut* [39, 40], but five findings in three longitudinal studies found no association [32, 39, 40]. These inconsistencies could be attributable to differential associations among subgroups and differences in measures used. Rosenbaum found *educational aspirations* to be protective against *early sex* for white males and females and for Hispanic males, but found no association for African American males and females or Hispanic females [39]. Another study found *educational aspirations* to be protective for females against engaging in *early sex*, but not for males [40]. Of the three studies that reported no association findings for *early sex*, only one reported results at the bivariate level. That study reported a protective association between *educational aspirations* and *early sexual debut* [32], suggesting that other factors may mediate the influence of *educational aspirations* on *early sexual debut*.

All eight studies on the ASRH outcome of *pregnancy/birth* examined all-female samples. *Educational aspirations* were found to be protective against *pregnancy or having given birth* in 13 findings from six longitudinal studies [47–52], but seven findings from four longitudinal studies found no association [47, 48, 53, 54]. The studies had no apparent differences to explain the inconsistent results. However, of the four studies having no association findings, bivariate results indicated a protective association in two of the four studies, with a third study finding a positive but nonsignificant trend; the fourth study did not report the nature of the bivariate relationship. These findings suggest the possibility that other factors may mediate the effects of *educational aspirations* on *pregnancy/birth* among females.

The number of longitudinal studies was insufficient for drawing conclusions about the relationship between *educational aspirations* and the other ASRH outcomes included in the review (i.e., *ever had sex*, *recent sex*, *condom use*, *number of sexual partners*, and *frequency of sex*).

Also, too few longitudinal studies were available to enable us to form conclusions about the relationship between *future time perspectives* and any ASRH outcome included in this review. One longitudinal and eight cross-sectional studies examined the association between *future time perspectives* and ASRH. The longitudinal study found no association with *early sexual debut* [41]; 11 cross-sectional findings found protective associations, but eight found no association between *future time perspective* and ASRH outcomes. One cross-sectional study found an indirect effect [62]; Carvajal et al found that optimism predicted condom use self-efficacy and negative expectancies toward unsafe sex, which in turn predicted intentions to avoid having sex without a condom.

Findings regarding the role of *belief in the future* for specific subpopulations were also examined. Three longitudinal studies (meeting the standard of evidence) suggested that *educational aspirations* were protective for African American, Hispanic, and white females against *pregnancy/birth* [47, 48, 50]. Evidence also suggests that *belief in the future* may be more protective against certain ASRH outcomes for females than for males. Ten longitudinal studies, meeting the standard of evidence, found *belief in the future* to be protective for females [32, 33, 39, 40, 45, 47–49, 51, 52]; however, of the seven longitudinal studies that included stratified results for males, two reported protective findings [39, 45], and seven found no association [32, 34, 39, 40–42, 45]. Findings were insufficient to assess associations by age.

Self-determination

We identified 14 studies that examined the association between *self-determination* and ASRH outcomes; all 14 (six longitudinal and eight cross-sectional) investigated the possibility of a direct association between *self-determination* and ASRH outcomes.

A review of the identified studies indicated that *self-determination* was typically operationalized as *locus of control*, and the 14 studies examined the extent to which young persons believed that what happened to them was determined by themselves (i.e., internal locus of control), not by outside determinants such as fate or luck (i.e., external locus of control). The studies used various measures for *self-determination*: three studies used a single item to measure *locus of control*; three used scales but did not report the psychometric properties; and seven provided information on the psychometric properties of the scales used. For example, two studies used Rotter's scale of locus of control [64], two used the Nowicki–Strickland Locus of Control Scale for Children [65], and one used the Health Locus of Control Scale [66], including the internal and external locus of control subscales. Of the four studies that reported a Cronbach's alpha, the range of scores was .27–.85; three of these studies reported an alpha $\geq .70$.

Table 3 shows the findings of the direct association between ASRH outcomes and *self-determination*, operation-

alized as *locus of control*. Overall, evidence indicates that *self-determination* can be protective; at least two longitudinal findings showed protective associations with two outcomes (i.e., *ever had sex, pregnancy/birth*). No studies found *self-determination* to be a risk factor for any outcome examined.

Four findings from two longitudinal studies found *self-determination* to be protective against the outcome of having *ever had sex* for females [67, 68], but six findings from two studies found no association. These discrepancies may be due to different associations by gender and race/ethnicity. For example, Pearson [67] and Day [68] found internal *locus of control* to be protective against having *ever had sex* among females, but found no association for males. Day also analyzed results by race/ethnicity and found that the protective association was the same for Chicana, Latina, and white females; however, no association was found for African American females.

Two findings from two longitudinal studies found protective effects for *self-determination* against *pregnancy or birth* [52, 73]; however, three findings from three longitudinal studies identified no association for specific subgroups [53, 73, 74]. These inconsistent findings may be attributable to varying associations by gender or differences in measures used. Of the four longitudinal studies, three used all-female samples; two showed protective effects, and one showed no association. The one study that used an all-male sample found no significant association between *locus of control* and becoming a father before age 20 at the multivariate level, but the protective association was significant at the bivariate level [73]. The two longitudinal studies that reported a protective effect for females used 6-item scales to measure *locus of control* [52, 73]; the two longitudinal studies that found no association used single items to measure *locus of control* (i.e., the extent to which the individual believes his or her success is due to personal initiative vs. external factors such as fate or luck) [53, 74].

When considering the findings for the role of *self-determination* for additional subpopulations, we found evidence that *self-determination* is a protective factor for females for the outcomes of having *ever had sex* and *pregnancy/birth* [52, 67, 68, 73]; however, we found insufficient evidence for a protective effect for males [67, 68, 74]. Only two cross-sectional studies stratified results by race/ethnicity, and showed inconsistent results. One found protective associations for pregnancy/birth among both African American and white youth [64], and the other found no association for condom use among African American youth [71]. Of the four longitudinal studies that found significant protective results, three followed up adolescents from middle to high school [52, 67, 68], and one followed up the participants for four years from the 10th grade [74].

Clear and positive identity

Of 28 studies that examined the association between *clear and positive identity* and ASRH outcomes, three longitudinal

Table 3
Self-determination: associations with adolescents' sexual and reproductive health outcomes

	Finding/relationship		
	Protective association	Risk factor association	No association
Self-determination (six longitudinal and eight cross-sectional studies)			
Ever had sex ^c	4 ^{a,c} [67, 68]		6 ^a [67, 68] 3 ^b [69, 70]
Use of condom	1 ^a [67] 1 ^b [71]		2 ^b [71, 72]
Pregnancy/birth ^c	2 ^{a,c} [52, 73] 4 ^b [64, 70, 75]		3 ^a [53, 73, 74] 2 ^b [76, 77]
Use of contraception			2 ^b [70]
Self-determination: overall findings ^c	7 ^{a,c} 5 ^b	0	9 ^a 9 ^b

Numbers in brackets are reference to studies where findings were observed.

^a Indicates the number of longitudinal findings.

^b Indicates the number of cross-sectional findings.

^c Indicates that it met the standard of evidence (i.e., findings from *at least two* longitudinal studies provided evidence for a protective or risk association).

and 25 cross-sectional studies examined the possibility of a direct association between *clear and positive identity* and ASRH; two of the cross-sectional studies also examined the indirect effect of *identity* [78, 79].

Several sub-constructs for *clear and positive identity* were identified (i.e., *overall identity*, *body image*, *racial/ethnic identity*, *sexual identity*, and *social identity*). Religious identity was not included in this article but was included as a component of spirituality in an article in this issue that examines character [80]. Assessment of *clear and positive identity* varied across the studies; eight studies measured *overall identity*, and 20 measured a specific domain of identity (i.e., *body*, *racial/ethnic*, *sexual*, or *social*). One study assessed Marcia's stages of identity development and their relationship to ASRH outcomes [81]. Identity assessment instruments also varied across the studies and tended to cluster by domain. Almost 40% of the studies (11/28) used a single item to assess identity (e.g., "Are you as attractive, less attractive, or more attractive than your peers?"). Many of these studies (6/11) are in the *sexual identity* (e.g., sexual orientation) domain. Multiple-item scales were used in 17 studies to measure general and specific domains of identity, and most of these studies provided support for the scale's validity and reliability. Of the 14 studies that reported a Cronbach's alpha for the identity scale, the range of alphas was .65–.95, with 79% reporting alphas $\geq .70$.

Table 4 shows the findings of direct associations between *clear and positive identity* and ASRH outcomes for *overall identity* and sub-constructs of *body image*, *racial/ethnic identity*, *sexual identity*, and *social identity*. On the basis of a small number of longitudinal studies and the inconsistency of available results across sub-constructs, evidence was insufficient to conclude that *clear and positive identity* is a risk or protective factor. However, the stratified results revealed trends warranting additional research.

One longitudinal and seven cross-sectional studies examined adolescents' *overall identity*. The longitudinal study

used a single item to assess a narrow dimension of *overall identity* (i.e., rating how much a "jock" label defines adolescents' identity) [82]. This approach differed from the general *overall identity* measures used by other researchers in this domain. The study found that a jock identity was a risk for *recent sex*, *greater number of sexual partners*, and *greater frequency of sex* for African American adolescents but not for white adolescents. Using a broader definition of *overall identity*, the cross-sectional studies consistently indicated that *positive overall identity* may be a protective factor for *contraceptive use* (three findings from two studies), *condom use* (one finding from one study), *number of sexual partners* (two findings from one study), and a *sexual risk index* of risk behaviors such as unprotected sex and number of partners (five findings from two studies) [81, 85–87, 102]. This positive support was found in studies that included mixed race/ethnicity, single-gender samples [81, 85, 87, 102]; mixed race/ethnicity, mixed-gender samples [86]; young adolescents [87]; and college-aged youth [81, 86]. In contrast, results were inconsistent for associations between *positive overall identity* and other ASRH outcomes in the review; this inconsistency may be related to variability in samples and identity measures used. For example, for the outcome of *early sexual debut*, Magnusson found that a *positive overall identity* was a risk factor [84], but Felton and Bartoces found no association between *identity* and *early sexual debut* [83]. Although both studies included all-female samples, Magnusson examined a non-U.S. population and reported findings from data collected before 1985 [84].

Adolescents' *body image* was examined by one longitudinal and six cross-sectional studies. These studies suggest that a *positive body image* may be more protective for ASRH outcomes in females than in males. For example, a *positive body image* was a risk factor for *early sexual debut* for males in the longitudinal study but was not associated with *early sexual debut* for females in the same longitudinal study or in one cross-sectional study that assessed that

Table 4
Clear and positive identity: associations with adolescents' sexual and reproductive health outcomes

	Finding/relationship		
	Protective factor association	Risk factor association	No association
Overall identity (one longitudinal and seven cross-sectional studies)			
Recent sex/current sexual activity		1 ^a [82]	1 ^a [82]
Early sexual debut		2 ^a [82] 1 ^b [84]	2 ^b [83]
Use of contraception	3 ^b [85, 102]		
Use of condoms	1 ^b [81]		
No. sexual partners	2 ^b [86]	1 ^a [82]	1 ^a [82]
Frequency of sex		1 ^a [82]	1 ^a [82]
Sexual risk index	5 ^b [86, 87]		
Subtotal of findings	11 ^b	5 ^a 1 ^b	3 ^a 2 ^b
Body image (one longitudinal and six cross-sectional studies)			
Ever had sex		3 ^b [88, 89]	2 ^b [88]
Recent sex/current sexual activity	1 ^b [90]		
Early sexual debut		1 ^a [91]	1 ^a [91] 1 ^b [92]
Use of contraception	1 ^b [92]		
Use of condoms	2 ^b [92, 93]	1 ^b [93]	3 ^b [92, 93]
No. sexual partners		1 ^b [93]	3 ^b [93]
Sexual risk index		1 ^b [78]	5 ^b [78, 93]
Subtotal of findings	4 ^b	1 ^a 6 ^b	1 ^a 14 ^b
Racial/ethnic identity (two cross-sectional studies)			
Ever had sex			1 ^b [79]
Sexual risk index		1 ^b [94]	
Subtotal of findings		1 ^b	1 ^b
Sexual identity (six cross-sectional studies)			
Ever had sex		1 ^b [95]	
Recent sex/current sexual activity		1 ^b [95]	
Early sexual debut		1 ^b [95]	1 ^b [96]
Use of condoms	1 ^b [103]	1 ^b [97]	4 ^b [95, 97, 98]
No. sexual partners		3 ^b [95, 97]	1 ^b [97]
Sexual risk index		1 ^b [95]	
Contracted an STI		2 ^b [97, 99]	1 ^b [97]
Pregnancy/birth		1 ^b [95]	
Subtotal of findings	1 ^b	11 ^b	7 ^b
Social identity (one longitudinal and four cross-sectional studies)			
Ever had sex		1 ^b [100]	1 ^b [35]
Early sexual debut		2 ^b [42]	
Use of condoms			1 ^b [101]
Sexual risk index		1 ^b [100]	1 ^b [101]
Pregnancy/birth		1 ^a [48]	1 ^a [48]
Subtotal of findings		1 ^a 4 ^b	1 ^a 4 ^b
Identity: overall findings	16 ^b	7 ^a 23 ^b	5 ^a 28 ^b

Numbers in brackets are reference to studies where findings were observed.

^a Indicates the number of longitudinal findings.

^b Indicates the number of cross-sectional findings.

relationship [91, 92]. Also, one cross-sectional study suggested that a positive *body image* may be a risk factor for male adolescents' lack of *condom use* and greater *number of partners* [92]. Three cross-sectional studies reported that

a positive *body image* was a protective factor for female adolescents' *recent sexual activity*, *contraception use*, and *condom use* [90, 92, 93]; however, two studies found that a positive *body image* was a risk factor for having *ever had*

sex and a sexual risk index among females [78, 88]. Specifically, Trapnell et al examined a college undergraduate sample and found that even when levels of flirtatiousness were considered, a positive *body image* was a risk factor for an index of sexual risk behaviors among females [78].

Racial/ethnic identity was examined by only two cross-sectional studies, which had different outcomes, indicating a need for further research. One study found no association between positive *racial/ethnic identity* and African American adolescents' reports of having *ever had sex* [79], and the second study found that higher biculturalism (i.e., identification with others in one's own ethnic group as well as with those in other groups) was a risk factor for Latino youth's reports of *sexual risk* [94].

Six cross-sectional studies examined relationships between *sexual identity* and ASRH outcomes, and results generally showed that a homosexual or bisexual *sexual identity* was significantly more likely to be a risk factor and that a heterosexual orientation had no association with the examined outcomes; however, because of the small number of available studies and inconsistent findings, results were inconclusive. For example, although two studies used similar high school samples and measures, one found that self-identification as homosexual or bisexual was a risk factor for *early sexual debut* [95], and the other found no association between *sexual identity* and *early sexual debut* [96]. Associations between *sexual identity* and *condom use* and STI were also inconsistent, perhaps because homosexual and bisexual youth were combined in some analyses [97, 99] and history of sexual abuse was controlled for in another study [98]. Goodenow et al found that youth who self-identified as homosexual and heterosexual did not differ in their reports of having an STI, but youth who identified as bisexual were at greater risk for STIs as compared with their heterosexual peers [97]. These findings suggest that combining homosexual and bisexual youth in analyses may be less helpful than analyzing these subgroups separately. The examination of incarcerated male adolescents by Magura et al was the only study in this literature review to find that self-identification as homosexual or bisexual was a protective factor for *condom use* compared with youth who identified as heterosexual [103]. Although many identified studies selected high-risk samples such as homeless or sexually abused adolescents, the other risk behaviors and unique environment experienced by Magura et al's incarcerated sample may influence this group's behavior.

Social identity (e.g., popularity) was examined by one longitudinal and four cross-sectional studies and yielded inconsistent findings. Moore et al conducted a longitudinal investigation of an all-female sample and found that a popular *social identity* was significantly predictive of future *pregnancy* for African American females but not for white females [48]. However, a cross-sectional analysis of a mixed-gender and mixed-ethnicity sample found no significant association between adolescents' *social identity* and *pregnancy* [100]. The same study reported a risk associ-

ation between a popular *social identity* and outcomes of having *ever had sex* and a *sexual risk index*; however, two studies reported no association for these same behavioral outcomes [35, 101]. All studies identified as examining *social identity* used samples with similar age and racial/ethnic distributions. However, each study used different measures of *social identity*, which may contribute to the heterogeneous results.

Because so few longitudinal studies examined the relationship between *clear and positive identity* and ASRH outcomes, evidence was insufficient to draw conclusions about the role of *identity* among subpopulations.

Self-efficacy

We identified 70 studies that examined the association between *self-efficacy* and ASRH outcomes. All 70 studies examined direct associations of *self-efficacy* (10 longitudinal and 62 cross-sectional); two of these also examined indirect effects of *self-efficacy*.

Two sub-constructs were identified for self-efficacy (i.e., *sexual self-efficacy* and *nonsexual self-efficacy*). Most studies (n = 67) used measures of *sexual self-efficacy*, such as self-efficacy to refuse sex or negotiate condom use. A smaller number of studies (n = 5) assessed *nonsexual self-efficacy*, including general, social, and drug abstention self-efficacy. The measures used to assess *self-efficacy* varied. Six studies used a single item, and 58 studies used scales and reported the scale's psychometric properties. Of the 53 studies presenting a Cronbach's alpha, the range of scores was .46–.93, and 79% of the alphas presented were $\geq .70$. One study presented a Kuder–Richardson test of reliability, two presented test-retest reliability, and 10 conducted factor analysis with self-efficacy items. Twenty-three studies used self-efficacy scales for which validity had been previously established or for which the authors established face validity; one study established test-level content validity.

Table 5 shows the direct associations between *sexual* and *nonsexual self-efficacy* and ASRH outcomes. Overall, evidence for *self-efficacy* was mixed; two longitudinal studies demonstrated protective associations for three outcomes (i.e., *ever had sex*, *condom use*, and *sexual risk index*), and two longitudinal studies demonstrated a risk association with having *ever had sex*.

Two findings from two longitudinal studies reported that higher *sexual self-efficacy* was associated with a decreased likelihood of having *ever had sex* [67, 104]. In contrast, an increased likelihood of having *ever had sex* was also found (four findings in two longitudinal studies) [104, 105]; two findings in two longitudinal studies reported no association [106, 107]. Further analysis of these results suggests that the age of the sample group and the type of *sexual self-efficacy* assessed may contribute to the conflicting longitudinal findings for *ever had sex*. Santelli et al found that results varied with age and grade and noted a protective association between *sexual self-efficacy* (i.e., the ability to refuse sex,

Table 5
Self-efficacy: associations with adolescents' sexual and reproductive health outcomes

	Finding/relationship		
	Protective association	Risk factor association	No association
Sexual self-efficacy (10 longitudinal and 59 cross-sectional studies)			
Ever had sex ^c	2 ^{a,c} [67, 104] 10 ^b [79, 108–112]	4 ^{a,c} [104, 105] 3 ^b [107, 110, 113]	2 ^a [106, 107] 7 ^b [35, 108, 114, 115]
Recent sex/current sexual activity	1 ^b [116]		5 ^b [108, 116]
Early sexual debut	1 ^b [117]		
Use of contraception	1 ^a [118] 5 ^b [113, 119, 120]		4 ^a [119] 8 ^b [108, 119, 120]
Use of condom ^c	2 ^{a,c} [67, 118] 33 ^b [62, 103, 108, 110, 113, 114, 117, 121–134]		2 ^a [67, 121] 26 ^b [72, 101, 108, 113, 115, 121, 122, 125–127, 129, 131, 132, 135, 136]
No. sexual partners	1 ^b [128]		
Frequency of sex	1 ^b [137]		
Sexual risk index	2 ^{a,c} [138, 139] 12 ^b [114, 135, 140, 144–147]		13 ^b [101, 140–143]
Contracted an STI	1 ^b [148]		1 ^b [149]
Intention (to have sex, to use condom)	47 ^b [62, 109, 122, 123, 146, 150–163]		50 ^b [150, 122, 152, 154, 155, 157]
Subtotal of findings ^c	7 ^{a,c} 112 ^b	4 ^{a,c} 3 ^b	8 ^a 110 ^b
Nonsexual self-efficacy (five cross-sectional studies)			
Ever had sex			1 ^b [108]
Recent sex/current sexual activity			1 ^b [108]
Use of contraception			1 ^b [108]
Use of condom			4 ^b [108, 124, 164]
No. sexual partners			2 ^b [164]
Sexual risk index	4 ^b [165]	4 ^b [165]	8 ^b [164–166]
Sub-total of findings ^c	4 ^b	4 ^b	17 ^b
Self-efficacy: overall findings ^c	7 ^{a,c} 116 ^b	4 ^{a,c} 7 ^b	8 ^a 127 ^b

Numbers in brackets are reference to studies where findings were observed.

^a Indicates the number of longitudinal findings.

^b Indicates the number of cross-sectional findings.

^c Indicates that it met the standard of evidence (i.e., findings from at least two longitudinal studies provided evidence for a protective or risk association). *Italicized* means that there is mixed evidence for this behavior.

alcohol and other drugs, and to use condoms) and having *ever had sex* during seventh grade but found a risk association during eighth grade [104]. Pearson found a protective association of *self-efficacy to refuse unwanted sex* and having *ever had sex* in high school youth [67]. Martino *et al* who asked youth 12–17 years of age to rate their confidence in their ability to obtain and use condoms in varying situations, such as when a partner needs to be convinced, found that among white and African American youth, those who watched more sexually explicit television and had higher *self-efficacy to use condoms* were more likely to have *ever had sex* [105]. Of the two longitudinal studies that found no association with *ever had sex*, one assessed *self-efficacy to refuse unwanted sex* among high school youth [106], and the other assessed *condom negotiation self-efficacy* among British youth of high school age [107]. Other than the British study, all studies assessed large U.S. samples of mixed race/ethnicity and gender. Therefore, no more than one study found a similar association between *ever had sex* for a single age group and type of *sexual self-efficacy*. These inconclusive longitudinal findings are accompanied by mixed bivariate findings.

Two findings from two longitudinal studies showed a protective association between *sexual self-efficacy* and *condom use* [67, 118]; two findings from two longitudinal studies reported no association between *sexual self-efficacy* and *condom use* [67, 121]. No studies reported a risk association. These discrepancies may be due to differential impact among subgroups and variations in measurement, but no clear pattern emerged. One longitudinal study that found a protective association for *condom use* evaluated the *self-efficacy to negotiate condom use* among males and females in middle and high school by using data from the National Longitudinal Study of Adolescent Health [118]. Another longitudinal study used a single item to measure the association between *self-efficacy to refuse unwanted sex* and *condom use* and found a protective association for females in high school but found no association for males [67]. The other longitudinal finding of no association for *condom use* assessed *condom negotiation self-efficacy* in a sample with mixed race/ethnicity, gender, and age [121].

The evidence indicated that *sexual self-efficacy* can be a protective factor when the outcome is a *sexual risk index*, even when the components of the sexual risk index vary. Two findings from two longitudinal studies showed protective associations with a *sexual risk index* [138, 139], and no longitudinal findings showed risk association or no association. Both longitudinal studies that found protective associations had all-female, multiple racial/ethnic groups, and multiple age samples, and assessed *condom negotiation self-efficacy*.

Evidence was insufficient to support *sexual self-efficacy* as a protective factor for other ASRH outcomes, including *recent sex*, *early sexual debut*, *use of contraception*, *number of sexual partners*, *frequency of sex*, and *STI*.

In addition to the direct associations presented in Table 5, indirect effects were also examined in one longitudinal and one cross-sectional study. Two studies found that the relationship between *sexual self-efficacy* and an ASRH outcome was fully mediated. A longitudinal study found an indirect risk association; adolescents who reported having greater *self-efficacy to negotiate safer sex* at the beginning of the study were also more likely to have a steady partner, a finding associated with a greater likelihood of being sexually experienced at the end of the study [107]. A cross-sectional study found an indirect protective association in which *self-efficacy to communicate with peers about sex* predicted positive attitudes toward condom use, which in turn predicted greater *intent to use condoms* [150].

Too few studies existed to draw conclusions about whether *nonsexual self-efficacy* is a risk or protective factor for any ASRH outcome. Five cross-sectional studies measured *nonsexual self-efficacy*, but the majority of the findings ($n = 8$) reported no association.

We also examined whether evidence existed to draw conclusions about the role of *self-efficacy* for specific subpopulations. We found evidence that *sexual self-efficacy* may be more protective for females than for males. Of the four longitudinal findings from three gender-specific studies, three were protective findings for a *sexual risk index* among females, and one showed no association for males for *condom use* [67, 138, 139]. Longitudinal research was inadequate for us to draw conclusions about racial/ethnic groups, and the findings by age revealed mixed longitudinal evidence for *ever had sex* among middle school youth (one risk finding and one protective finding from the same study) [104]. For high school youth, only one longitudinal study indicated a protective association for *ever had sex* [67], and four studies had four findings of no association for *ever had sex* and *contraceptive use* [67, 106, 107, 119].

Discussion

This review of the published data examining the association between four constructs of *confidence* (*belief in the future*, *self-determination*, *clear and positive identity*, and *self-efficacy*) and ASRH outcomes indicated evidence of a protective association for two of the four *confidence* constructs. Specifically, evidence was found to support *belief in the future* and *self-determination* as protective factors for ASRH outcomes, but was mixed for *self-efficacy* and was insufficient to draw conclusions about *clear and positive identity* as a risk or protective factor (Table 6). For most constructs and ASRH outcomes, the findings by age, race/ethnicity, and gender were unclear, although patterns emerged that warrant further investigation.

The review by Gavin *et al* included in this issue further suggests that PYD programs targeting the *confidence* constructs of *belief in the future* and *self-determination* can have a positive, and often long-lasting, effect on ASRH outcomes [167]. Additionally, although this review's

Table 6
Summary of key findings in literature review of associations of confidence constructs and adolescent sexual and reproductive health

Confidence construct	Findings	
	Sufficient evidence for protective association	Comments
Belief in the future	Early sex; Pregnancy/birth	Educational aspirations may be protective for early sexual debut and pregnancy/birth, especially for females
Self-determination	Ever had sex; Pregnancy/birth	Locus of control may be a protective factor for having ever had sex and pregnancy/birth, especially for females
Clear and positive identity	Insufficient evidence	Insufficient evidence to determine if identity is a protective factor for adolescent sexual and reproductive health outcomes
Self-efficacy	Sexual risk index; Condom use	Sexual self-efficacy may be protective of condom use and an index of sexual risk behaviors. Evidence was mixed for an association between sexual self-efficacy and having ever had sex; both risk and protective associations were identified

examination of nonintervention behavioral research did not indicate substantial evidence that *clear and positive identity* is a protective factor for ASRH outcomes, the PYD program review findings of Gavin *et al* suggest that helping young people develop a *clear and positive identity* may be one of the elements that support healthy sexual and reproductive health decisions [167]. For example, the Adult Identity Mentoring project seeks to build participants' *clear and positive identity* [168], and the Teen Outreach Program aims to develop young people's *belief in their future* [169]; both programs have been found to have a positive effect on ASRH outcomes. In addition, the Carrera program [170] and the Reach for Health service learning program [171] have shown positive effects on ASRH outcomes, and both include activities to promote *self-determination*. However, these intervention studies did not conduct analyses to confirm whether or how the program activities may have had an effect on the constructs of *confidence* for improving the ASRH outcomes. These meditational analyses would add evidence of the potential of these constructs of *confidence* to affect ASRH outcomes.

Given the relatively small body of evidence identified in this review, more research is clearly needed. Specific research priorities vary for each construct, but, overall, additional high quality longitudinal research is needed that examines direct and indirect associations of *confidence* constructs on ASRH outcomes. This research would provide a means to better understand how increased *confidence* may affect ASRH outcomes and could help intervention developers include activities that supported elements of *confidence*. Additionally, future research should use valid and reliable measures, examine effects on a wide range of ASRH outcomes, and assess how generalizable the findings are (e.g., by age, gender, and race/ethnicity). For example, the majority of the research that investigated the association between *belief in the future* and ASRH outcomes was conducted with all-female samples. Longitudinal studies with a mixed-gender sample of sufficient size to allow gender-specific analyses would support the examination of whether *belief in the future* is equally protective for males and females. Additionally, *self-determination* tended to be

a protective factor for females, but evidence was insufficient to make a determination for males; also, a positive *body image* was a risk factor for males but a protective factor for females. Understanding these differences is important to the development and delivery of intervention and prevention programs appropriate and effective for varying groups of adolescents.

The need for improved standardization of measurement of all four constructs of *confidence* and the ASRH outcomes was evident in our review of the published data. Measures of *confidence* varied considerably across the studies, reflecting varying operational definitions; often, the measures used had limited reliability. One-item questions were frequently used to measure complex constructs. These problems highlight the need for further conceptualization and development of valid and reliable measures for all four *confidence* constructs. These measurement weaknesses may play a role in the inconsistent evidence or lack of evidence found in this review. For instance, no evidence was found that *clear and positive identity* is a protective factor for ASRH, perhaps because the different domains of identity and stages of identity need to be more clearly conceptualized and adequately measured to determine their association with health behaviors. Despite theoretical research describing goal setting as a key component of *belief in the future* [14], no studies identified in this review assessed goal setting, and only one longitudinal study examined the role of *future time perspective*. For *self-determination*, none of the studies that met our inclusion criteria measured potential sub-constructs such as autonomy, rather they all measured *locus of control*. Future research should measure more of the theoretical components of the constructs, enabling us to gain a better understanding of the association of the PYD constructs with ASRH outcomes.

One interesting finding from the review was that although some evidence indicated that *sexual self-efficacy* may be protective, there were also findings that were categorized as risk associations. Further review of these findings revealed that the type of sexual or reproductive health outcome measured helps to explain the risk association. For example, the longitudinal study by Martino *et al* that produced a risk association measured *self-efficacy to use condoms* and

likelihood of *initiating sex* [105]. However, two longitudinal studies reported a protective association for *self-efficacy to negotiate condom use* and increased likelihood to use condoms [67, 118]. These findings imply that the type of outcome investigated is important to understanding the risk and protective findings. *Sexual self-efficacy* may increase sexual initiation, but it also seems to increase protected sex. Future longitudinal research using measures of specific types of *sexual self-efficacy* can help clarify these mixed findings.

This review has several limitations. Although best efforts were made to find all relevant research articles, some may have been overlooked because of the search terms. The evidence was reviewed only for the prediction of ASRH outcomes, not for other outcomes; therefore, a complete assessment of the risk or protective role of *confidence* is not possible. Also, we did not include *no association* findings in our standard of evidence, although in several cases a substantial number of findings fell into this category. It is possible that these findings are real, that is, there is no association between the *confidence* sub-constructs and ASRH outcomes for some subgroups of youth. Yet, it is also possible that many of the *no association* findings were related to inadequate sample size or use of multivariate methods that may have masked indirect effects (this is further indicated by the multiple occasions when associations were significant at the bivariate level but not at the multivariate level). Future research is needed to address these questions. A final limitation was that the review was limited to a systematic description of the published data rather than a meta-analysis. Given the multiple constructs, lack of standardization of measures, multiple outcomes, and lack of prior reviews examining *confidence* sub-constructs, a broader, more inclusive approach was deemed valuable, that is, one that included promising leads and described the full range of relevant research. There are precedents for this approach in the published data [172, 173]. Furthermore, a key finding from the review is that the published data are relatively sparse in terms of the numbers of studies that examined comparable outcomes and used comparable measures. Focusing the papers on the small body of research for which meta-analyses could be conducted would have severely restricted the ability to describe the broader body of published data, identify ways that future research can be strengthened, and provide guidance for intervention development.

Conclusions

This review provides a comprehensive and systematic review of the existing published data addressing the association between the four constructs of *confidence* and ASRH outcomes. The review suggests that *confidence* can be a protective factor for ASRH outcomes. Although further research and measurement development of understudied confidence constructs is needed, it is likely that PYD programs that include activities and support to promote *belief in the future* and *self-determination* may promote healthy sexual and reproductive health outcomes among participants.

This review indicates that there is a critical need for studies to develop valid and reliable measures that are relevant for all youth subgroups, and to provide longitudinal research that can examine the influence of *confidence* across adolescent development. Further research is also needed to clarify the mixed findings found for *self-efficacy*, and to examine whether a *clear and positive identity* is a protective or risk factor for ASRH outcomes.

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