

Case Study 1: An Evidence-Based Practice Review Report

Are within family factors, such as level of support, communication and connectedness, correlated with mental health outcomes for transgendered youth? A systematic literature review of quantitative research in the field.

Summary

Transgender youth are a population at risk of negative mental health. Research in this area has consistently shown that such youth experience higher levels of depression and engage in more risk behaviours, such as self-injury, than their cisgender peers. This review synthesised the outcomes of quantitative studies that have investigated the correlation between within family factors, such as level of support, communication and connectedness, and mental health outcomes. The results show significant relationships between a number of within family factors and mental health in this population. However, factors mediating such relationships were age of youth and level of self-harm behaviour. The conclusions were that for younger transgender people, family interventions to increase levels of support would be beneficial for mental health, but that increasing access to social support would be more helpful to older youth. Implications for Educational Psychologists working with families of transgender youth are discussed.

Introduction

The term *transgender* refers to individuals who spend all or a significant period of their lives expressing a gender identity that does not match their assigned sex at birth (natal sex) (Grossman & D'Augelli, 2007). The term encompasses many areas of gender identity that do not fit the neatly defined binary concepts of male/female, such as being *between* boy / girl or man / woman (Connolly, Zervos, Barone, Johnson & Joseph, 2016). For the majority of people gender identity is congruent with anatomy, yet for transgendered individuals this lack of congruence may be distressing. This discomfort was up until recently referred to as Gender Identity Disorder (GID). Since 2014, due to sustained debate over the implied relation to psychopathology, GID has been changed to Gender Dysphoria (GD).

Some researchers have suggested that the negative mental health issues in transgender individuals are a result of psychopathology that is comorbid with GD / GID (Coates & Person, 1985). The implication here is that GD / GID is indicative of wider mental health issues. However there is a growing body of research suggesting that the internalising symptoms associated with GD may be the result of social disapproval and rejection, particularly in the family, rather than an inherent psychological problem. For example, recent research has shown that transgender children undergoing affirmative therapies rather than reparative treatments appear to have less negative mental health (Hill, Menvielle, & Johnson, 2010). This study also found that parents of these children had lower levels of genderism and transphobia than the parents of children undergoing conversion therapies. These findings have been supported by research showing that transgender children, between 3 and 12

years old, who have their gender identities affirmed by their families and have socially transitioned to their preferred gender, have relatively good mental health (Olson, Durwood, Demeules, & Mclaughlin, 2016). Being transgendered, therefore, may only result in increased psychopathology when the preferred gender is not affirmed or supported by others, especially the family.

The link between lower family support and poorer mental health for transgender youth is consistent with research examining the impact of family rejection on lesbian, gay and bisexual (LGB) youth. In one study of male homosexuals, family rejection was cited as an important predictor of a range of risk taking behaviour including attempted suicide (Ryan, Huebner, Diaz & Sanchez, 2010). Similarly, D'Augelli et al. (2006) found that a third of a sample of lesbian, gay and bisexual adolescents had attempted suicide, with parental psychological abuse being one of the most significant factors associated with the attempt. This study also highlighted that the greater the young person's gender atypical behaviour the greater the rate of suicide attempt, particularly for males (D'Augelli et al., 2006). High rates of self-injurious behaviour are also found amongst transgendered young people. For transgender youth, rates of self-harm and suicide are comparable, if not slightly higher than LGB youth, with percentages for self-harm ranging from 20.6% - 54.8% and 9.3% - 31.0% for suicide attempt (Haas, Rogers & Herman, 2014). As with their LGB peers, a number of family factors such as rejection of trans-expression and family violence toward the child appear to be associated with the vulnerability to such life threatening behaviours (Klein & Golub, 2016).

Many explanations have been proposed for why transgender youth experience rejection by their families. Some authors suggest that disclosure by a transgender child may lead to grieving in the parent or stress as a result of low relational competencies to deal with family difficulties (Katz-Wise & Tsappis, 2016). Other studies have interpreted rejection as a result of family prejudice towards non-conforming behaviour. For example, Newman and Muzzonigro (1993) found that disclosure in families with more traditional values, such as the importance of religion and strict adherence to traditional sex roles, was associated with less acceptance. This may be particularly relevant to the stigma around transgender expression in natal boys whose behaviour is contrary to the culturally accepted values of masculinity (Connell, 1987).

Rationale and relevance

The call for more research and professional input to support the mental health of transgender youth has been described as urgent (O'Brien, Mcmanama, Hebert, Falk & Aguinaldo, 2016). As social scientists working in the field with the 0-25 age group, Educational Psychologists (EPs) are well placed to support vulnerable young people; yet considering the increasing coverage in research, media and society, the lack of literature in educational psychology, regarding gender variance in young people, is surprising (Yavuz, 2016). The purpose of this review is to address this gap. If family factors are found to be associated with better mental health outcomes it may imply potential intervention foci for Educational Psychologists working with transgender youth. The review question addresses the following family dimensions: level of support, communication and connectedness. This is because initial screening of research in the area of transgender youth, family and mental health,

revealed that measures of these constructs, in particular, were used to examine within family factors.¹

Review question

Are within family factors, such as level of support, communication and connectedness, correlated with mental health outcomes for transgendered youth? A systematic literature review of quantitative research in the field.

Critical Review of the Evidence Base

Literature Search

Comprehensive literature searches were conducted on 27th November 2018. The following databases were used to conduct a literature search: PsycINFO, PubMed and Scopus. The search term used to gather the research was; *(famil* OR parent*) AND transgender AND (children OR youth OR adolescent*) AND "mental health"*. Studies were screened for their relevance using the inclusion / exclusion criteria in Table 1. Initial title and abstract screening left 57 articles from which 25 duplicates were removed. The remaining 32 research papers were fully screened and 27 removed based on the inclusion and exclusion criteria. These 27 papers, with exclusion rationale, appear in Appendix A, Table A.1. Figure 1 outlines the literature search process. Table 2 lists the five studies included in this review.

¹ Recommendations for greater standardisation of assessment of within family factors for research with this population are provided in the 'Conclusion and Recommendations' section of this review.

Figure 1

Flow diagram outlining literature search

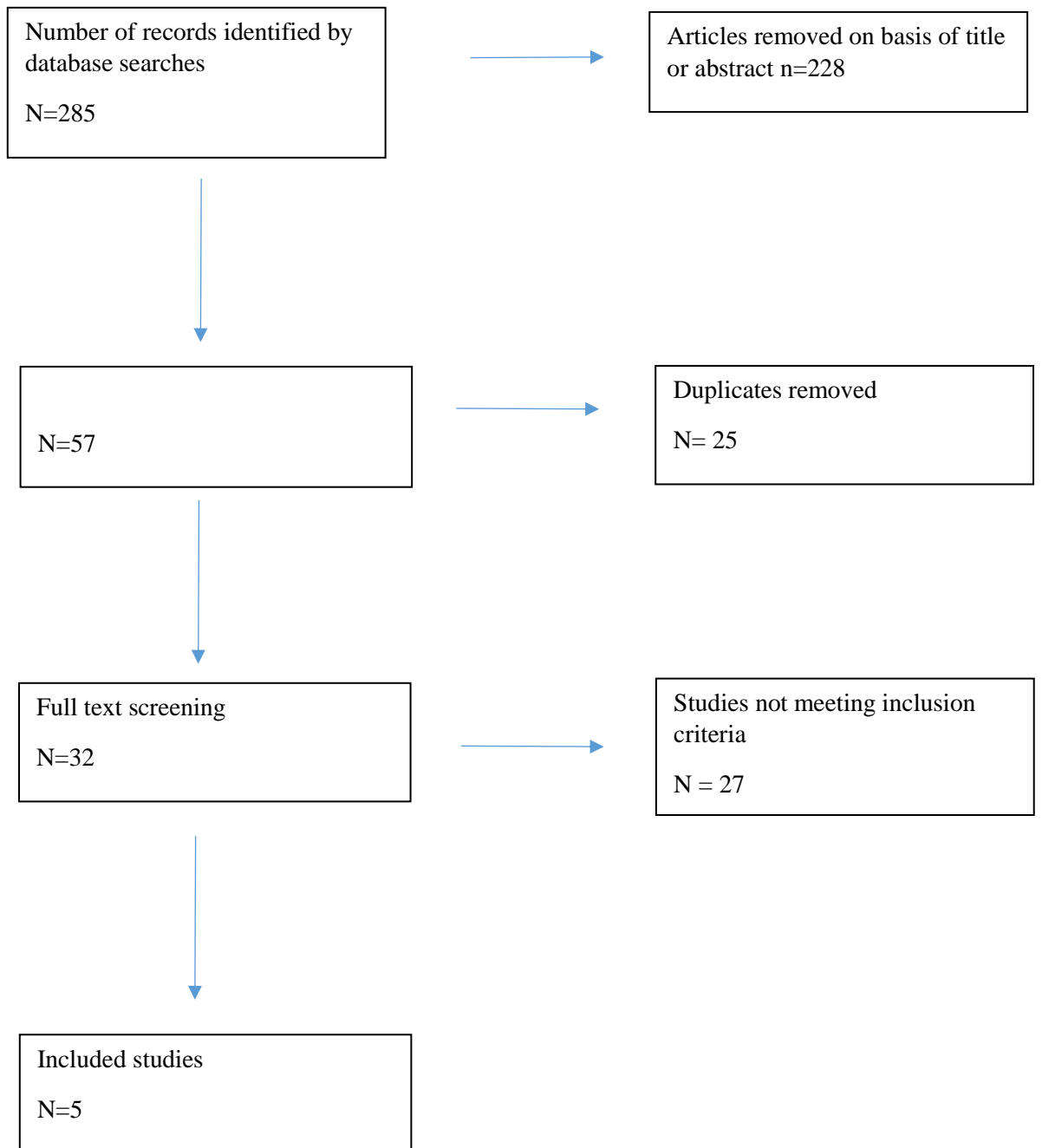


Table 1

Inclusion and Exclusion Criteria

Study feature	Inclusion criteria	Exclusion criteria	Rationale
1 Type of publication	Study is published in a peer reviewed journal	Study does not appear in a peer reviewed journal	Peer review is a quality indicator meaning the study has been critically appraised for methodology
2 Type of study	Study collects original quantitative empirical data	Study does not collect quantitative empirical data	The aim of this review is to investigate correlations between family factors and transgender mental health in primary research. These aims are not fulfilled by single case studies, literature reviews / meta-analysis (secondary research) or research with qualitative analysis
3 Participants / population	Participants are transgender youth aged 0-25. Sample includes both natal males and natal females	Sample composed of transgender adults over the age of 25, or only one of natal males or natal females	Review focus is on transgender youth 12-25 age range. Samples restricted to either natal males or females may introduce biological sex as a confounding variable and lower the generalisability of the findings of the review. This review focuses on examining associations for transgender youth as a whole
4 LGBT study	Study aims focus on outcomes for transgender youth only	Study aims to elicit outcomes for lesbian, gay, bisexual and transgender (LGBT) as a whole	Review focus on studies examining outcomes for transgender youth only

Study feature	Inclusion criteria	Exclusion criteria	Rationale
5 Language / country	Study is conducted in an OECD country and is available in the English language	Study is not conducted in an OECD country and is not accessible in English	The findings of research in studies in other countries other than OECD may not be applicable to UK educational psychology practice
6 Measures	Research must have continuous measures for family support, communication, connectedness or functioning	Research does not have continuous measures for family support, communication, connectedness or functioning	These measures are the focus of this review, therefore studies that do not consider these two variables are deemed inappropriate. Continuous measures for this variable are needed to assess extent of support
7 Date of research	Studies post 2000 to be included	Pre 2000 studies	Transgender research has developed much in the last eighteen years such that it is inferred that outdated measures for this population may have been used in older research (pre 2000)

Table 2

Studies Included in this review

Full reference of studies reviewed
Grossman, A. H., & D'Augelli, A. R. (2007). Transgender Youth and Life-Threatening Behaviors. <i>Suicide and Life-Threatening Behavior</i> , 37(5), 527-537.
Katz-Wise, S., Ehrensaft, D., Veters, R., Forcier, M., & Austin, S. (2018). Family Functioning and Mental Health of Transgender and Gender-Nonconforming Youth in the Trans Teen and Family Narratives Project. <i>The Journal of Sex Research</i> , 55(4-5), 582-590.
Simons, L., Schrage, S. M., Clark, L. F., Belzer, M., & Olson, J. (2013). Parental Support and Mental Health Among Transgender Adolescents. <i>Journal of Adolescent Health</i> , 53(6), 791-793.
Taliaferro, L., McMorris, B., Rider, G., & Eisenberg, M. (2018). Risk and Protective Factors for Self-Harm in a Population-Based Sample of Transgender Youth. <i>Archives of Suicide Research</i> , 1-19.
Veale, J., Peter, T., Travers, R., & Saewyc, E. (2017). Enacted Stigma, Mental Health, and Protective Factors Among Transgender Youth in Canada. <i>Transgender Health</i> , 3(1), 27-216.

Mapping the field

The five studies were correlational studies using cross-sectional data. All the studies collected quantitative data that was used to measure the strength of the relationship between level of family support and mental health outcomes for transgender youth.

Table 3 summarises the key features of each study.

Table 3

Mapping the field

	Sample	Study design	Age	Country	Measures of family support, communication, connectedness	Measures of mental health
Grossman & D'Augelli (2007)	55 transgendered youth 31 natal males and 24 natal females	Correlational design with cross-sectional data	15 – 21	USA	Childhood Parental Abuse assessed via Child and Adolescent Psychological Abuse Measure.	Suicidal ideation and suicide attempt assessed through interviews yielding quantitative data. Lethality of suicide attempt rated by interviewer.
Katz-Wise, Ehrensaft, Veters, Forcier, & Austin (2018)	33 transgendered youth 13 natal males, 20 natal females	Correlational design with cross-sectional data	13 – 17	USA	Family communication and satisfaction assessed with Family Adaptability and Cohesion Evaluation Scales (FACES IV)	Center for Epidemiologic Studies Depression Scale (CES-D) Spence Children's Anxiety Scale (SCAS) Self-esteem: Rosenberg Self-Esteem Scale (RSES) Resiliency: Resilience Scale for Adolescents (READ)

Sample	Study design	Age	Country	Measures of family support, communication, connectedness	Measures of mental health	
					Mental health diagnoses: statement of diagnosis	
Simons, Schragger, Clark, Belzer, & Olson (2013)	66 transgendered youth 32 natal males and 34 natal females	Correlational design with cross-sectional data	12-24	USA	Parental support assessed through the Multidimensional Scale of Perceived Social Support	Existence and severity of depressive symptoms assessed through Beck Depression Inventory II Life satisfaction and perceived burden assessed through a measure used with HIV patients
Taliaferro, Mcmorris, Rider, & Eisenberg (2018)	1,635 transgendered youth 523 natal males and 1,112 natal females	Correlational design with cross-sectional data	14-17	USA	Measures of protective factors including parent connectedness	Self-harm measured by response to two items examining self-harm behaviour (including suicide attempt) in past year. This led to 3 group classifications. 1) no NSSI or SA (no self-harm), 2) NSSI (non-suicidal self-injury) only and

Sample	Study design	Age	Country	Measures of family support, communication, connectedness	Measures of mental health
					3) NSSI and SA (self-injury and suicide attempt)
Veale, Peter, Travers & Saewyc (2017)	839 transgendered youth 417 natal males and 422 natal females	Correlational design with cross-sectional data	14 – 18 (300) 19 – 25 (539)	Canada 14 – 18 year olds assessed for family connectedness assessed using British Columbia Adolescent Health Survey, Minnesota Student Survey and other sources 19 – 25 year olds assessed using Parental Connectedness Scale	Mental health: assessed non-suicidal self-injury (NSSI) for all participants and suicide attempts in past year (for both age groups) 14 – 18 year olds assessed for stress and despair over past 30 days using General Well-being Schedule 19 – 25 year olds asked first question of World Health Organisation Composite International Diagnostic Interview Short Form to measure depression

Critical evaluation

The included studies were critically appraised using the 'Weight of Evidence' framework by Gough (2007).

Weight of evidence A evaluated the methodological quality of the research using a coding protocol adapted from Thompson, Diamond, McWilliam, Robin and Snyder (2005). WoE A ratings based on this protocol can be found in Appendix B Table B.1.

Weight of evidence B examines the extent to which a study's design is appropriate to answering a research question. Rationale for scoring WoE B can be found in Appendix B, Table B.2 and scores for each study in Appendix B Table B.3.

Ratings for weight of evidence C were determined by how relevant the focus of each of the studies were for answering the review question. Rationale for WoE C calculations can be found in Appendix B, Table B.4 and research scores in Appendix B, Table B.5

Lastly, weight of evidence D was an averaging of the scores for A, B and C to provide an overall weight of evidence score. WoE D scores appear in Table 4. Table 5 provides an overview of the research design and relevant measures.

Table 4

Weight of Evidence Ratings for Studies Included in this Review

	WoE A	WoE B	WoE C	WoE D
Grossman, & D'Augelli (2007)	0.7 (low)	1 (medium)	1.8 (medium)	1.2 (medium)
Katz-Wise, Ehrensaft, Vetter, Forcier, & Austin (2018)	1.6 (medium)	1 (medium)	2.3 (high)	1.6 (medium)
Simons, Schrage, Clark, Belzer, & Olson (2013)	1.4 (medium)	1 (medium)	2.5 (high)	1.6 (medium)
Taliaferro, McMorris, Rider, & Eisenberg (2018)	1.9 (medium)	2 (high)	1.8 (medium)	1.9 (medium)
Veale, Peter, Travers, & Saewyc, (2017)	2.1 (high)	2 (high)	2.25 (medium)	2.2 (high)

WoE quality indicator: 0 - .9 (low), 1 – 1.9 (medium), 2 – 3 (high)

Table 5

Overview of the Studies Research Design and Measures Relevant to this Review

	Measures		Design
	Predictor variable	Outcome variable	
Grossman & D'Augelli (2007)	Child and Adolescent Psychological Abuse Measure	Suicidal Ideation, Attempt and Lethality	Correlational study using cross-sectional data
Katz-Wise, Ehrensaft, Vetter, Forcier, & Austin (2018)	FACES IV (Family Adaptation and Cohesion Evaluation Scales)	CES – D (Depression) RSES (Self-esteem) READ (Resilience)	Correlational study using cross-sectional data
Simons, Schragger, Clark, Belzer, & Olson (2013)	Multi-dimensional Scale of Perceived Social Support	Beck Depression Inventory II Life Satisfaction Perceived Burden	Correlational study using cross-sectional data
Taliaferro, Mcmorris, Rider & Eisenberg (2018)	Parent Connectedness	NSSI (Non-suicidal self-injury) NSSI and SA (Suicide attempt) No Self Harm	Correlational study using cross-sectional data
Veale, Peter, Travers & Saewyc (2017)	14 – 18 year olds: British Columbia Adolescent Health Survey (Family Connectedness) 19 – 25 year olds: Parental Connectedness Scale	NSSI 14 – 18 year olds: General Well-being Schedule (Stress) 19 – 25 year olds: World Health Organisation Composite International Diagnostic Interview (Depression)	Correlational study using cross-sectional data

Calculations of effect size

Effect sizes for the review were calculated for Pearson's correlation, r . Effect size interpretation was based on the following standards for r , small = .10, medium = .30, large = .50 (Cohen, 1988). For studies providing β coefficients, effect sizes were first calculated by converting β to r . The rationale came from Peterson, Brown and Zedeck (2005) who suggested that using β coefficients in the absence of correlation coefficients produces accurate measures of population effect size. The equation used was $r = \beta + .05\lambda$, where λ equals 1 when β was positive and 0 when β was negative. The formula was used to convert β to effect size type r , for research by Simons et al. (2013) and Katz-Wise et al. (2018). For one study (Grossman & D'Augelli, 2007) it was necessary to calculate Cohen's d , using the Campbell Collaboration Effect Size Calculator, then converting d to r using $\sqrt{\frac{4r^2}{1-r^2}}$. This was because the authors had only reported means and standard deviations. For Taliaferro et al. (2018) and Veale et al. (2017), r was transformed from Odds Ratio effect sizes reported in these studies using www.psychometrica.de/effect_size. Effect sizes and measures relevant to the review appear in Table 6. Main findings, effect size range and overall weight of evidence (WoE D) rating for each study are summarised in Table 7.

Table 6

Effect Sizes for Correlation between Predictor and Outcome Variables for Measures Relevant to Review

	Sample size and age	Predictor	Outcome	Effect size type	Effect size	Effect size interpretation	Study quality (WoE D)
Grossman & D'Augelli (2007)	55 15 – 21 year olds	Parental verbal abuse	Attempters of suicide vs non attempters of suicide	<i>r</i>	.32	Medium	1.2 (medium)
		Parental physical abuse	Attempters of suicide vs non attempters of suicide		.43	Medium	
Katz-Wise, Ehrensaft, Vetter, Forcier, & Austin (2018)	33 13 – 17 year olds	Family communication	Self-harm	<i>r</i>	-.29	Small	1.6 (medium)
			Depressive symptoms		-.65	Large	
			Anxious symptoms		-.52	Large	
			Self-esteem		.75	Large	
		Family satisfaction	Self-sarm		-.30	Medium	
			Depressive symptoms		-.47	Medium	
			Anxious symptoms		-.40	Medium	
			Self-esteem		.70	Large	

			Resiliency		.36	Medium	
Simons, Schrager, Clark, Belzer, & Olson (2013)	66	Parental support	Life satisfaction	<i>r</i>	.37	Medium	1.6
	12 – 24		Perceived burden		-.44	Medium	(medium)
	year olds		Depressive symptoms		-.26	Small	
Taliaferro, Mcmorris, Rider & Eisenberg (2018)	1,635	Parent connectedness	NSSI vs no self-harm	<i>r</i>	-.07	No effect	1.9
	14 – 17		NSSI and SA vs no self-		-.27	Small	(medium)
	year olds		harm				
			NSSI and SA vs NSSI only		-.43	Medium	
Veale, Peter, Travers & Saewyc (2017)	839	Family	NSSI in past year	<i>r</i>	-.54	Large	2.2
	14 – 18	Connectedness Scale (14 – 18)	Suicide attempt		-.38	Medium	(high)
	year olds		Extreme despair in past		-.52	Large	
	19 – 25		month				
	year olds	Parent	NSSI in past year		(p>.05)		
		Connectedness (19 – 25)	Seriously considered suicide		-.26	Small	
			Depression		(p>.05)		

Magnitude of *r*: *small* = .10, *medium* = .30, *large* = .50 (Cohen, 1988)

WoE D quality indicator: 0 - .9 (low), 1 – 1.9 (medium), 2 – 2.9 (high)

Table 7

Study Findings, Effect Size Range and Overall Weight of Evidence (WoE D) Rating

	Study findings	Effect size range	WoE D
Grossman & D'Augelli (2007)	Significant differences ($p < .05$) were found between transgender youth who were attempters and non-attempters of suicide on the level of parental physical and verbal abuse they had encountered	.32, .43	1.2 (medium)
Katz-Wise, Ehrensaft, Veters, Forcier, & Austin (2018)	Significant correlations between transgender reports of family communication and depression, anxiety, self-esteem and resiliency	-.29, .75	1.6 (medium)
	Significant correlations between transgender reports of family satisfaction and self-harm, depression, anxiety, self-esteem and resiliency	-.30, .70	
Simons, Schrage, Clark, Belzer, & Olson (2013)	Significant positive correlation between parental support and life satisfaction ($p = .02$). Significant negative correlations between parental support and depression ($p = .05$) and perceived burden ($p < .001$).	.37, -.44	1.6 (medium)
Taliaferro, Mcmorris, Rider & Eisenberg (2018)	No significant differences between transgender youth who self-harm (NSSI) and those who do not when compared for level of parental connectedness.	-.07, -.43	1.9 (medium)
	Significant differences between transgender youth who self-harm and have attempted suicide and those who have self-harmed only when compared for level of parental connectedness ($p < .001$)		
Veale, Peter, Travers & Saewyc (2017).	Significant negative correlations for transgender youth aged 14-18 years old between family connectedness and NSSI and despair ($p < .05$)	-.38, -.54	2.2 (high)
	No significant correlations for transgender youth aged 19-25 between parental connectedness and mental health measures		

Sample

Studies used convenience sampling. There were three forms of sampling ranging from participants presenting for care at clinics, recruitment by attendance at a support group for LGBT youth or recruitment via response to survey. Studies using samples recruited from clinics received the highest WoE C, criteria D, rating as transgendered status would have been validated by clinician. This was the case for Simons et al. (2013), hence this study attained a score of 3 for this criteria. Studies recruiting from support groups (Katz-Wise et al., 2017 and Grossman & D'Augelli, 2007) were allocated scores of 2 as the participants' attendance at such groups was considered to validate their transgender status. Such studies also used face-to-face interview methods where transgender status was verified by researchers. Lowest scores for WoE C, criteria D, were given to studies that recruited samples by way of internet or school based survey. The rationale for this was that transgender status could not be verified in such anonymous data collection methods. The lowest scores for this criteria were attained by Veale et al. (2017), where participants responded online to the Canadian Trans Youth Health Survey, and Taliaferro et al. (2018) who collected data from the school administered Minnesota Student Survey.

The studies were also appraised for the age range of the sample recruited. WoE C, criteria A, was scored on how well the sample reflected the age groups that are commonly encountered in EP practice. As a result of the Children and Families Act (2014) EP work now extends into the post-16 age range. However, as this is a relatively new development in the profession, where planning for post-16 is still being examined for potential scope of practice (Morris & Atkinson, 2018), it was felt that research findings from samples at the upper end of this range would be less generalizable to the young people that EPs typically work with at present. WoE C,

criteria A, scores were thus calculated on the basis of whether research gathered data from participants that were between the ages of 12-16 (score of 3), 13 – 18 (score of 2) and 18 – 25 (score of 1). No study scored 3 as age ranges tended to be large or, if smaller, tended to include participants that fell into the post-16 category. Taliaferro et al. (2018), Katz-Wise et al. (2018) and Veale et al. (2017) scored 2, whereas Grossman and D’Augelli (2007) and Simons et al. (2013) scored 1.

Study design

All studies were correlational studies utilising cross sectional data, meaning observations for all measures were made at one time point and then correlated (Barker, Pistrang & Elliot, 2016). WoE A was evaluated using the coding protocol devised by Thompson et al. (2005) (Appendix B, Table B1). Grossman and D’Augelli’s (2007) research gained the lowest rating for WoE A. This was because this research had converted measures for suicide, interval level data, to nominal data (suicide attempters and non-attempters). According to Thompson et al. (2005), nominal scale is inappropriate given a multi-outcome variable such as lethality of suicide attempt. The other studies avoided these macro-analytic mistakes. However, studies shared other limitations. For example, no study compared effect sizes for their primary findings in light of previous research, nor did they examine effect sizes in the context of the study’s limitations. Only two studies (Taliaferro et al., 2018 and Veale et al., 2017) provided effect sizes for each of the outcomes in the research. This was the same for reporting confidence intervals, with these two studies being the only ones to report these for the effect sizes obtained. Evidencing these two quality indicators gave Taliaferro et al. (2018) and Veale et al. (2017) the highest WoE A scores (1.94 and 2.14 respectively).

Analysis

Studies were also appraised on the basis of typology of correlational analysis undertaken (WoE B). Bivariate regression analyses were assigned a score of 1, multivariate regressions were assigned 2, and research using structural equation modelling were scored 3. The rationale was that bivariate regression was the least valid form of analysis as it ignores the contribution of other predictors. In the context of this review it was felt that multivariate regression analysis would be more appropriate as it would allow a comparison of family factors with other predictors of mental health. Although not used by any study in this review, structural equation modelling was deemed the most appropriate analysis for the review question as it can be used to identify the direction of causality between variables (Thompson et al., 2005). The two studies that used multivariate regression, Taliaferro et al. (2018) and Veale et al. (2017), were therefore assigned the highest scores for WoE B.

Measures

Studies differed in how mental health was quantified. The most notable dichotomy was between specific measures for mental health and extent of suicide attempt and/or self-harm. As the review topic refers to mental health, it was felt that studies including measures for a number of mental health disorders or symptoms should have higher WoE C, criteria B, ratings. This was for two reasons: 1) that relationships between family support and specific measures of mental health would provide important indications as to how the family affects the psychological well-being of transgender youth (e.g. *“is low family connectedness related to greater depressive symptoms?”*) and 2) that specific mental health measures would allow comparison of the extent of a relationship between level of family support and severity of mental health symptoms.

Both of the studies that used suicide and/or self-harm as a sole criterion for mental health treated these as discrete rather than continuous variables, such that the extent of mental health impact was not explicitly analysed. For this reason Grossman and D'Augelli (2007) and Taliaferro et al. (2018) achieved the lowest WoE C scores. All other studies achieved a WoE C, criteria B, score of 3 as they had at least two specific measures of mental health.

Synthesis of findings from research

Findings from all studies revealed significant relationships between within family factors and mental health. The studies with the highest overall quality ratings for WoE D, 2.2 and 1.9, were Veale et al. (2017) and Taliaferro et al. (2018). Coincidentally, both studies also had the largest samples which improves their generalisability. One of the largest contributors to these studies overall WoE D ratings was their use of multivariate correlational analysis.

The consideration of multiple predictor variables elicited important relationships in the research by Veale et al. (2018). This study found a medium effect size ($r = -.38$) for the relationship between family connectedness and suicide attempt and large effect sizes for family connectedness and self-harm and extreme despair ($r = -.54$ and $r = -.52$) in 14 – 18 year olds. The protective effect of the family was more predictive of better mental health than other measures such as *school connectedness* and *perception of friends caring*. However for older transgender youth, aged 19-25, the relationship between family connectedness and mental health only produced small effect sizes, which were non-significant ($p > .05$). In comparison, measures of *social support* for 19-25 year old youths were more predictive of better mental health

outcomes than family connectedness. For this age group, higher social support was predictive of lower rates of self-harm ($r = -.42$) and lower rates of depression ($r = -.42$).

Significant relationships between higher family communication / satisfaction and mental health were also found in Katz-Wise et al. (2018) study of 13-17 year olds. The largest effect sizes were found for the relationship between higher family communication and lower depressive symptoms ($r = -.65$) and higher family communication and self-esteem ($r = .75$). Slightly smaller effects were found between higher family satisfaction and lower depressive symptoms ($r = -.47$) and higher self-esteem ($r = .70$). As with Veale et al. (2017), such findings suggest a consistency between higher family communication and connectedness and better mental health outcomes for younger transgender youth, particularly lower feelings of depression and despair and higher self-esteem. The large effect sizes obtained in Katz-Wise et al. (2018) may, however, be inflated by use of bivariate regression as this study did not control for the relative contribution of other variables, like social support, to mental health outcomes. Potentially, social support could be an important variable impacting both level of communication in the family and mental health of transgender youth.

Simons et al. (2013) also found significant correlations between parental support and mental health. For example a medium effect of $r = .37$ was found between higher parental support and life satisfaction and $r = -.44$ for perceived burden. Only a small effect size was obtained between parental support and depressive symptoms ($r = -.26$). However the study was not sufficiently powered as it would require a sample size of 84 to detect a medium effect for depressive symptoms (Cohen & Steinberg, 1992). This research had a sample of only 66. Another reason may have been the age range distribution for the study as Simons et al. (2013) used a sample of 12-24 year olds (mean age 19.04). Findings from Veale et al. (2018), which was sufficiently

powered (sample size of 839), showed that there were only small effect sizes for the relationship between family support and mental health for 19-25 year olds, with higher social support being more predictive of better mental health for this age group. The small effect sizes for depression observed in Simons et al. (2013) may therefore be the result of using an older sample.

Of the two studies using suicide and self-harm measures for mental health status, Taliaferro et al. (2018) attained the highest WoE D scores (1.9). They found a medium effect size for the difference in levels of parent connectedness ($r = -.42$, $p < .001$) between transgender youth who self-harm (NSSI) and attempt suicide (SA) and those that engage in self-harm only. This indicates that higher levels of parent connectedness may be a protective factor against suicide attempt for those who engage in self-harm. However, higher parent connectedness only had a small effect ($r = -.27$, $p > .05$) when distinguishing those who do not engage in self-harm or attempt suicide from those that do both. Instead, it was *connectedness to other adults* that was predictive of no self-harm or suicide attempt in transgender youth. A medium effect ($r = -.40$) was found between those that self-harm and attempt suicide and those that do neither when compared on this measure. To prevent transgender youth from self-harm behaviour and attempted suicide, establishing connectedness to adults outside of the family therefore may be protective.

Although achieving the lowest WoE D score (1.2), Grossman and D'Augelli's (2007) findings on the relationship between family support and suicide attempt are worth summarising in the context of the research by Taliaferro et al. (2018). They found a medium effect ($r = .32$) distinguishing attempters of suicide from non-attempters on the level of parental verbal abuse and a medium effect size ($r = .43$) distinguishing these two groups on the level of parental physical abuse. The impact of verbal abuse

is also consistent with Katz-Wise et al. (2018) who found that family communication had a significant impact upon depression and self-esteem. Grossman and D'Augelli's (2007) results, like those of Katz-Wise et al. (2018) and Simons et al. (2013), must be interpreted with caution as bivariate analysis was used. Potential mediators on the relationship between abuse, family communication, support and mental health in these studies were not accounted for.

Conclusions and Recommendations

This review has found significant correlations between within family factors and mental health outcomes for transgender youth. The overall conclusion is that higher support, better communication and more connectedness to family members, particularly parents, is protective against negative mental health and self-injurious behaviour. However the extent of this effect is mediated by age and level of self-harm. For those under 18, higher parental connectedness is the most significant predictor of better mental health, particularly lower levels of self-harm and despair, but for older youth social support appears to be more protective than connectedness to the family. Family interventions to improve connectedness are therefore likely to have the most impact upon younger transgender youth. Parent connectedness was also found to have a complex relationship with self-injurious behaviour. It appears that higher connectedness to other adults is more predictive of no self-harm and that parent connectedness is an important protective factor against suicide attempt in those that self-harm already. In addition, type of communication in the home is also important with research finding that poorer family communication is more predictive of depression and verbal abuse a predictor of suicide attempt.

Age and indications of self-harm will be important factors in deciding how EPs can best intervene for transgender youth. Age, in particular, will be significant in decisions to either target support at the family level or whether to foster connectedness to other adults. It is recommended, though, that interventions target many systems around the young person at once, simultaneously meeting the need for positive family relationships as well as access to greater social support. In this way interventions could offer a more comprehensive level of care and protection.

EPs can intervene in a number of ways for transgender youth, for example by offering family training programs aimed at developing more effective and supportive communication. Furthermore, EPs could help signpost families to community groups to lessen the feelings of isolation and stigma of being a family with a transgender child. This would also begin to develop the social support that transgender youth need as they get older. Contact with wider community groups may, however, serve another purpose. One meta-analysis examining findings across 41 studies found that increased contact with sexual minority individuals was effective in reducing sexual prejudice (Smith, Axelton & Saucier, 2009). If feelings of prejudice exist in a particular family, it is hoped that contact with the transgender community may have a similar effect in reducing hostility and rejection towards the transgender child.

Research into the mental health of younger transgender people is lacking (Simons et al., 2013) and this is particularly noticeable for UK based research on this population. None of the studies in this review were conducted in the UK, which is surprising given that the risks for this vulnerable group are relatively well understood (Public Health England, 2015). A greater understanding of the risk and protective factors of UK transgender youth is therefore needed. Recommendations based on the limitations of studies in this review would be that measures of family factors and mental health are

more standardised across research to allow for meaningful comparison between studies. One suggestion may be the use of the Family Assessment Measure (FAM). Aside from having high validity and reliability (Skinner, Steinhauer, & Sitarenios, 2000), the FAM offers a more holistic assessment across many dimensions of the family, such as control, communication, affective expression and involvement, than the measures used by studies in this review. It is argued here that the use of a single assessment tool would make comparisons across research more meaningful and lend itself well to meta-analytic investigation of the relative effects of the family. Additional recommendations for future research are that samples sizes are large enough to detect small effects and that studies examine multiple predictors for mental health, for example the influence of family factors, school connectedness and social support, and over very narrow age ranges. This is because transgender youth are not a homogenous group and will have different requirements for support and intervention that are dependent upon their age.

References

- Barker, C., Pistrang, N., & Elliott, R. (2016). *Research Methods in Clinical Psychology* (3rd edition), Chichester, UK: John Wiley & Sons Ltd.
- Campbell Collaboration (2016). *Effect Size Calculator*. Available at http://www.campbellcollaboration.org/resources/effect_size_input.php. (Accessed 10 January 2019)
- Coates, S., and Person, E. S. (1985) "Extreme Boyhood Femininity: Isolated Behavior or Pervasive Disorder?" *Journal of the American Academy of Child Psychiatry*, 24(6), 702-09.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. Florence: Routledge.
- Cohen, J., and Steinberg, R. J. (1992). A Power Primer. *Psychological Bulletin*, 112(1), 155-59.
- Connell, G. W. (1987). *Gender and Power*. Stanford, CA: Stanford University Press.
- Connolly, M. D., Zervos, M. J., Barone, C. J., Johnson, C. C., & Joseph, C. L., (2016). The Mental Health of Transgender Youth: Advances in Understanding. *Journal of Adolescent Health*, 59(5), 489-495.
- D'Augelli, A. R., Grossman, A. H., Salter, N. P., Vasey, J. J., Starks, M. T., & Sinclair, K. O. (2006). Predicting the Suicide Attempts of Lesbian, Gay, and Bisexual Youth. *Suicide and Life-Threatening Behavior*, 35(6), 646-660.
- Grossman, A. H., & D'Augelli, A. R. (2007). Transgender Youth and Life-Threatening Behaviors. *Suicide and Life-Threatening Behavior*, 37(5), 527-537.
- Haas, A., Rodgers, P., & Herman, J. (2014). Suicide Attempts Among Transgender and Gender Non-Conforming Adults: Finding of the National Transgender Discrimination Survey. Available at <https://williamsinstitute.law.ucla.edu/wp-content/uploads/AFSP-Williams-Suicide-Report-Final.pdf>. (Accessed on 21 January 2019).
- Hill, D. B., Menvielle, E., Sica, K. M., and Johnson, A. (2010) "An Affirmative Intervention for Families With Gender Variant Children: Parental Ratings of Child Mental Health and Gender." *Journal of Sex & Marital Therapy*, 36(1), 6-23.
- Gough, D. (2007). Weight of Evidence: A framework for the appraisal of the quality and relevance of evidence. *Research Papers in Education*, 22(2), 213–228.
- Katz-Wise, R., and Tsappis. (2016). "Lesbian, Gay, Bisexual, and Transgender Youth and Family Acceptance." *The Pediatric Clinics of North America*, 63(6), 1011-1025.

- Katz-Wise, S., Ehrensaft, D., Veters, R., Forcier, M., & Austin, S. (2018). Family Functioning and Mental Health of Transgender and Gender-Nonconforming Youth in the Trans Teen and Family Narratives Project. *The Journal of Sex Research, 55*(4-5), 582-590.
- Klein, A., & Golub, S.A. (2016). Family Rejection as a Predictor of Suicide Attempts and Substance Misuse Among Transgender and Gender Nonconforming Adults. *LGBT Health, Health, 3*(3), 193-9.
- Lenhard, W. & Lenhard, A. (2016). *Calculation of Effect Sizes*. Retrieved from: https://www.psychometrica.de/effect_size.html. Dettelbach (Germany): Psychometrica. DOI: 10.13140/RG.2.1.3478.4245 (Accessed 1 February 2019).
- McNeil, J., Bailey, L., Ellis, S., Morton, J., & Regan, M. (2012). *Trans Mental Health Study*. Edinburgh: Equality Network.
- Morris, Rachel, and Cathy Atkinson. (2018). The Role of Educational Psychologists in Supporting Post-16 Transition: Findings from the Literature. *Educational Psychology in Practice, 34*(2), 131-49.
- Newman, B. S., Muzzonigro, P. G. (1993). The effects of traditional family values on the coming out process of gay male adolescents. *Adolescence, 28*(109), 213-26.
- O'Brien, K. H., Mcmanama, J., M. P., Hebert, N. W., Falk, A. M., and Aguinaldo, L. D. (2016). Sexual and Gender Minority Youth Suicide: Understanding Subgroup Differences to Inform Interventions. *LGBT Health, 3*(4), 248-51.
- Olson, K., Durwood, L., Demeules, M., & Mclaughlin, K. (2016). Mental Health of Transgender Children Who Are Supported in Their Identities. *Pediatrics, 137*(3).
- Peterson, R., Brown, S., & Zedeck, S. (2005). On the Use of Beta Coefficients in Meta-Analysis. *Journal of Applied Psychology, 90*(1), 175-181.
- Public Health England (2015). Preventing Suicide Among Trans Young People: A Toolkit for Nurses. Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/417707/Trans_suicide_Prevention_Toolkit_Final_26032015.pdf. (Accessed on 10 February 2019)
- Ryan, C., Huebner, D., Diaz R. M., Sanchez J. (2010). Family rejection as a predictor of negative health outcomes in white and Latino lesbian, gay, and bisexual young adults. *Pediatrics, 123*(1), 346–352.
- Sharek, D., Huntley-Moore, S., & Mccann, E. (2018). Education Needs of Families of Transgender Young People: A Narrative Review of International Literature. *Issues in Mental Health Nursing, 39*(1), 59-72.

- Simons, L., Schrager, S. M., Clark, L. F., Belzer, M., & Olson, J. (2013). Parental Support and Mental Health Among Transgender Adolescents. *Journal of Adolescent Health, 53*(6), 791-793.
- Skinner, H., Steinhauer, P., & Sitarenios, G. (2000). Family Assessment Measure (FAM) and Process Model of Family Functioning. *Journal of Family Therapy, 22*(2), 190-210.
- Smith, S., Axelton, J., and Saucier, A., (2009). The Effects of Contact on Sexual Prejudice: A Meta-Analysis. *Sex Roles, 61*(3), 178-91.
- Taliaferro, L., Mcmorris, B., Rider, G., & Eisenberg, M. (2018). Risk and Protective Factors for Self-Harm in a Population-Based Sample of Transgender Youth. *Archives of Suicide Research, 1-19*.
- Thompson, B., Diamond, K. E., McWilliam, Robin, S. P., & Snyder, S. W. (2005). Evaluating the Quality of Evidence from Correlational Research for Evidence-Based Practice. *Exceptional Children, 71*(2), 181-194.
- Veale, J., Peter, T., Travers, R., & Saewyc, E. (2017). Enacted Stigma, Mental Health, and Protective Factors Among Transgender Youth in Canada. *Transgender Health, 3*(1), 27-216.
- Yavuz, C. (2016). Gender Variance and Educational Psychology: Implications for Practice. *Educational Psychology in Practice, 32*(4), 395-409.

Appendix A

Table A.1

List of excluded studies

Full reference	Rationale for exclusion	Criteria
Aramburu Alegría, C. (2018). Supporting families of transgender children/youth: Parents speak on their experiences, identity, and views. <i>International Journal of Transgenderism</i> , 19(2), 132-143.	Qualitative research	2
Austin, A. (2018). Transgender and Gender Diverse Children: Considerations for Affirmative Social Work Practice. <i>Child and Adolescent Social Work Journal</i> , 35(1), 73-84.	Not research but considerations for social work practice with TGN youth	2
Bockting, W. (2016). Vulnerability and Resilience Among Gender-Nonconforming Children and Adolescents: Mental Health Professionals Have a Key Role to Play. <i>Journal of the American Academy of Child & Adolescent Psychiatry</i> , 55(6), 441-443.	Not a study but provides health professional advice for work with this population	2
Capous-Desyllas, M., & Barron, C. (2017). Identifying and Navigating Social and Institutional Challenges of Transgender Children and Families. <i>Child and Adolescent Social Work Journal</i> , 34(6), 527-542.	Case study focusing on health care processes	2
Coolhart, D., Baker, A., Farmer, S., Malaney, M., and Shipman, D. Therapy with Transsexual Youth and their Families: A Clinical Tool for Assessing Youth's Readiness for Gender Transition. <i>Journal of Marital and Family Therapy</i> April 2013, Vol. 39, No. 2, 223–243	Not a study but article on assessment	2

Full reference	Rationale for exclusion	Criteria
Durwood, L., Mclaughlin, KA., & Olson, KR., (2017). Mental Health and Self-Worth in Socially Transitioned Transgender Youth. <i>Journal of the American Academy of Child & Adolescent Psychiatry</i> , 56(2), 116-123.e2.	Does not include continuous measure of family support	6
Flentje, A., Heck, N. C., & Sorensen, J. L., (2014). Characteristics of transgender individuals entering substance abuse treatment. <i>Addictive Behaviors</i> , 39(5), 969-975.	TGN adult sample	3
Forcier, M., & Haddad, E. (2013). Health care for gender variant or gender non-conforming children. <i>Rhode Island Medical Journal</i> (2013), 96(4), 17-21.	Not a study but overview of healthcare options for TGN youth	2
Gray, S., Sweeney, K., Randazzo, R., & Levitt, H. (2016). "Am I Doing the Right Thing?": Pathways to Parenting a Gender Variant Child. <i>Family Process</i> , 55(1), 123-138.	Qualitative research	2
Grossman, A., & D'Augelli, A. (2006). Transgender youth: Invisible and vulnerable. <i>Journal of Homosexuality</i> , 51(1), 111-28.	Qualitative research	2
Grossman, Arnold H., D'Augelli, Anthony R., & Frank, John A. (2011). Aspects of Psychological Resilience among Transgender Youth. <i>Journal of LGBT Youth</i> , 8(2), 103-115.	Does not include continuous measure for family support	6
Janicka, A., & Forcier, M. (2016). Transgender and Gender Nonconforming Youth: Psychosocial and Medical Considerations. <i>Rhode Island Medical Journal</i> (2013), 99(9), 31-4.	Not a study but considerations for healthcare	2

Full reference	Rationale for exclusion	Criteria
Katz-Wise, S., Budge, S., Orovecz, J., Nguyen, B., Nava-Coulter, B., Thomson, K., Kivilghan, Dennis M. (2017). Imagining the Future: Perspectives Among Youth and Caregivers in the Trans Youth Family Study. <i>Journal of Counseling Psychology</i> , 64(1), 26-40.	Qualitative research	2
Le, V., Arayasirikul, S., Chen, Y., Jin, H., & Wilson, E. (2016). Types of social support and parental acceptance among transfemale youth and their impact on mental health, sexual debut, history of sex work and condomless anal intercourse. <i>Journal of the International AIDS Society</i> , 19(S2).	Focus on trans-female youth only	3
Lopez, X., Stewart, S., Jacobson-Dickman, E. (2016). Approach to Children and Adolescents with Gender Dysphoria, <i>Pediatrics in Review</i> Mar 2016, 37 (3) 89-98; DOI: 10.1542/pir.2015-0032	Not a study but provides health professional advice for work with this population	2
Malpas, J. (2011). Between Pink and Blue: A Multi-Dimensional Family Approach to Gender Nonconforming Children and their Families. <i>Family Process</i> , 50(4), 453-470.	Qualitative research.	2
Menvielle, E., & Hill, D. (2010). An Affirmative Intervention for Families with Gender-Variant Children: A Process Evaluation. <i>Journal of Gay & Lesbian Mental Health</i> , 15(1), 94-123.	Does not have a continuous measure of family support	3

Full reference	Rationale for exclusion	Criteria
Olson, K. (2016). Prepubescent Transgender Children: What We Do and Do Not Know. <i>Journal of the American Academy of Child & Adolescent Psychiatry, 55</i> (3), 155-156.e3.	Not an empirical study	2
Olson, K., Durwood, L., Demeules, M., & Mclaughlin, K. (2016). Mental Health of Transgender Children Who Are Supported in Their Identities. <i>Pediatrics, 137</i> (3)	Does not have a continuous measure of family support	6
Pyne, J., Bauer, G., & Bradley, K. (2014). Transphobia and Other Stressors Impacting Trans Parents. <i>Journal of GLBT Family Studies, 11</i> (2), 1-20.	Research focusing on transgendered parents	3
Sherer, I. (2016). Social Transition: Supporting Our Youngest Transgender Children. <i>Pediatrics, 137</i> (3), E20154358.	Not a study but article review	2
Singh, A., Meng, S., & Hansen, A. (2014). "I Am My Own Gender": Resilience Strategies of Trans Youth. <i>Journal of Counseling & Development, 92</i> (2), 208-218.	Qualitative research	2
Spack, N., Edwards-Leeper, L., Feldman, H., Leibowitz, S., Mandel, F., Diamond, D., & Vance, S. (2012). Children and adolescents with gender identity disorder referred to a pediatric medical center. <i>Pediatrics, 129</i> (3), 418-25.	Not a study but description of symptoms and mental health issues of TGN youth presenting at clinic	2
Tishelman, A., Kaufman, R., Edwards-Leeper, L., Mandel, F., Shumer, D., Spack, N., Borden, Kathi A. (2015). Serving Transgender Youth:	Not a study but programme of care	2

Full reference	Rationale for exclusion	Criteria
Challenges, Dilemmas, and Clinical Examples. <i>Professional Psychology: Research and Practice</i> , 46(1), 37-45.		
Vanderburgh, R. (2009). Appropriate Therapeutic Care for Families with Pre-Pubescent Transgender/Gender-Dissonant Children. <i>Child and Adolescent Social Work Journal</i> , 26(2), 135-154.	Not a study but discussion of social worker and therapist role when working with TGN youth	2
Wilson, E., Chen, C., Arayasirikul, Y., Raymond, S., & McFarland, H. (2016). The Impact of Discrimination on the Mental Health of Trans*Female Youth and the Protective Effect of Parental Support. <i>AIDS and Behavior</i> , 20(10), 2203-2211.	Focus on trans-female youth only	3
Wiseman, M., & Davidson, S. (2012). Problems with binary gender discourse: Using context to promote flexibility and connection in gender identity. <i>Clinical Child Psychology and Psychiatry</i> , 17(4), 528-37.	Not a study but provides health professional advice for work with this population	2

Appendix B

Table B.1

Weight of Evidence (WoE) A Methodological Quality

For WoE A each study received a score of 1 or 0 for every criteria on the protocol; 1 if the criteria was met and 0 if not. The total score was then divided by the total maximum score (/17) and multiplied by 3 to provide an overall WoE A score between 0-3 for methodological quality.

	Measurement	Practical and clinical significance	Avoiding macro-analytic mistakes	Confidence intervals for reliability coefficients, statistics and effect sizes	WoE A
	Assumptions of the reliability of measures indicated from prior research with samples that are a) comparable in to sample in present study and b) have similar standard deviation	Scores obtained from measures in the study are empirically validated within the study	GLM weights are interpreted as reflecting correlations of predictors with outcome variables only when the weights are actual correlation coefficients	Confidence intervals are reported for the reliability coefficients derived for study data	Total score /17 multiplied by 3
Grossman & D'Augelli (2007)	1	1	0	0	0.71
Katz-Wise, Ehrensaft, Vetter, Forcier & Austin (2018)	1	1	0	0	1.59
Simons, Schrage, Clark, Belzer & Olson. (2013)	0	1	0	0	1.41
Taliaferro, McMorris, Rider & Eisenberg (2018)	1	1	0	0	1.94

Measurement	Practical and clinical significance	Avoiding macro-analytic mistakes	Confidence intervals for reliability coefficients, statistics and effect sizes	WoE A
				Total score /17 multiplied by 3
			Confidence intervals are interpreted by direct and explicit comparisons with related intervals from prior studies	0
			Confidence intervals are reported for effect sizes in the study	1
			Confidence intervals are reported for sample statistics (e.g. means, correlation coefficients) of primary interest in the study	0
			Confidence intervals are reported for the reliability coefficients derived for study data	0
			Evidence provided that the assumptions of statistical methods are well met for results to be deemed credible	1
			Univariate methods are not used post hoc to multivariate tests	1
			Univariate methods are not used in the presence of multiple outcome variables	1
			Interval data is not converted to nominal scale without justifications such as distribution shape	1
			Investigation of structure coefficients is undertaken for correlations deemed to be noteworthy	1
			GLM weights are interpreted as reflecting correlations of predictors with outcome variables only when the weights are actual correlation coefficients	1
			Authors critically appraise effect size in context of study design limitations	0
			Authors interpret effect sizes for selected practices by comparing with effect sizes in related prior studies	0
			Effect sizes are reported for each of the study's primary outcomes and is clearly identified	1
			Scores obtained from measures in the study are empirically validated within the study	1
			Measures used in the current study are assessed for validity using evidence from a prior study or test manual	1
			Score reliability coefficients are reported for all measured variables using data from the current study	1
			Assumptions of the reliability of measures indicated from prior research with samples that are a) comparable in to sample in present study and b) have similar standard deviation	1
Veale, Peter, Travers & Saewyc (2017)				2.12

Table B.2

Weight of Evidence (WoE) B Typology of Correlational Analyses

Weighting	Correlational analysis	Rationale
1	Bivariate regression	Bivariate regression is the simplest form of analysing correlation. As it only investigates the relationship between two variables it will ignore the contribution of other important predictors to mental health outcomes
2	Multivariate regression	Multivariate regression offers more complexity allowing an analysis of the relative association of a number of different predictor variables to the outcome variable. It can therefore be used to ascertain which variables have greatest predictive power.
3	Structural equation modelling	According to Thompson et al (2005) structural equation modelling is the form of correlational analysis that has the closest approximation to a <i>causal relationship</i> . This is because it can imply the direction of causality between co-variables

Table B.3

Weight of Evidence B Weightings for Studies

Study	WoE B	Rationale
Grossman & D'Augelli (2007)	1	Bivariate regression (one continuous and one nominal variable) using ANOVA
Katz-Wise, Ehrensaft, Vetter, Forcier, & Austin (2018)	1	Bivariate regression
Simons, Schrage, Clark, Belzer, & Olson (2013)	1	Bivariate regression
Taliaferro, McMorris, Rider, & Eisenberg (2018)	2	Multivariate regression
Veale, Peter, Travers & Saewyc (2017)	2	Multivariate regression

Table B.4

Weight of evidence C Criteria and Rationale

Criteria	Weighting	Rationale
A Age group	<p>3 study uses data obtained from an age group that is likely to be encountered in EP work (12 – 16)</p> <p>2 study uses data obtained from a sample with a age range of participants that is predominantly to be encountered in EP work (e.g. 13 – 18)</p> <p>1 study obtains data from participants at the upper age limit of EP work (e.g. 18 – 25)</p>	<p>This review attempts to find correlations between family support and mental health outcomes with a view that the findings will assist EPs in focusing support for transgendered youth at the correct level (school, youth or family). Findings for youth outside the commonest age ranges may be less appropriate than findings for the ages of children and young people that EP's commonly work with.</p>
B Measures	<p>3 study has a measure for family support and more than one measure for mental health</p> <p>2 study has measures of family support and one measure of mental health</p> <p>1 study has measures of family support and a measure from which mental health is inferred (e.g. suicide or self-harm)</p>	<p>Review question is based on the specific measures of family support and mental health. Research focused solely on these measures, particularly those with more than one measure for mental health, would be the most relevant in terms of topic area. However, research is still appropriate if such measures are included in the research or inferred from the measures used (e.g. measures for suicide attempt)</p>
C International / national context	<p>3 study conducted in an OECD country</p> <p>2 study conducted in a country similar to OECD country</p> <p>1 study conducted in a country very unlike OECD countries</p>	<p>Cultural impacts of being transgendered may be very different depending on country. For this review to be relevant to transgendered youth in the UK, cultural experience of participants in research should be, ideally, generalizable to this population.</p>
D Validity of transgender youth sample	<p>3 participants recruited from specialist clinic working with TGN youth</p> <p>2 participants recruited from support groups or community sources that work with TGN youth</p> <p>1 self-identification as TGN</p>	<p>For findings to be appropriate to this review it is important that the participants are definitively transgendered. Validating TGN status correctly is more likely if participants are seeking clinician support and /or attending support groups rather than self-identification alone.</p>

Table B.5

Weight of Evidence C Weightings for Studies

Study	WoE C				WoE C Total score
	A	B	C	D	
Grossman & D'Augelli (2007)	1	1	3	2	1.75
Katz-Wise, Ehrensaft, Vetters, Forcier & Austin (2018)	2	3	3	2	2.25
Simons, Schrager, Clark, Belzer, & Olson (2013)	1	3	3	3	2.5
Taliaferro, Mcmorris, Rider & Eisenberg (2018)	2	1	3	1	1.75
Veale, Peter, Travers & Saewyc, (2017)	2	3	3	1	2.25

