What do young people worry about? A systematic review of worry theme measures of teen and preteen individuals

Document Version
Author Accepted version

Title

What do Young People Worry About? A Systematic Review.

Running Head
YOUNG PEOPLE WORRY

Authors
Marcin Owczarek

School of Psychology, Ulster University, Coleraine.

Grainne McAnee

The Centre for Public Health, Queen's University Belfast, Northern Ireland.

Donal McAteer

School of Psychology, Ulster University, Coleraine, Northern Ireland.

Mark Shevlin[1]

School of Psychology, Ulster University, Coleraine, Northern Ireland.

Corresponding author: Mark Shevlin, Ulster University, School of Psychology, Coleraine, Northern Ireland. Email: m.shevlin@ulster.ac.uk

Abstract

Context: In the past 70 years there have been studies aimed towards documenting and analysing concerns or 'worries' of adolescents. There have been many standardised measurement tools and qualitative approaches established, as well as different themes or clusters of themes found. With the hopes of future clinical utility, it is important to parse through these studies and gather what is currently known about what adolescents worry about and what is the state of methods are to gather that knowledge.

Objective: To conduct a systematic narrative review on what adolescents worry about and to evaluate methods used to measure adolescent worry.

Data Sources and Selection: Studies were searched for using Web of Science, PubMed, Psycinfo, Scopus and ScienceDirect databases and selected on systematic criteria.

Data Extraction: Data regarding the country in which the study took place, participants, methods of collection, worry themes, and conclusions and limitations were extracted.

Data Synthesis: Quality of the studies included were established as well as the themes arrived at. Data was synthesised in a narrative fashion with attention placed upon replicability of the findings.

Conclusions: Methods of measuring the worry of adolescents that are currently available face certain problems. Themes and factors arrived at differ substantially between the studies, with the theme relating to school performance being constantly highly endorsed. Concepts of 'Worry', 'Rumination' and 'Personal problems' are used interchangeably. Most examinations of worry themes were performed before the widespread use of the internet

and social media. Our understanding of adolescent worry would improve with up-to-date

examinations.

What do Young People Worry About? A Systematic Review.

The act of worrying is considered universal and is "…a negative effect characterized by uncontrollable fear, thoughts, and images and focused on negative outcomes" (Borkovec, 1994). Worry is important in understanding the development and maintenance of emotion disorders; it was introduced as a core diagnostic criterion for generalised anxiety disorder (GAD) in the DSM-III-R (APA, 1987) and "…excessive worry focused on multiple everyday events" is a criterion for GAD in the 11th revision of the International Classification of Diseases (WHO, 2018). Worry is also a core component in general models of psychopathology (Wells, 2004) and is a transdiagnostic risk factor for specific psychological disorders and general psychological distress (Marshall et al., 2018). There is also evidence that worry is associated with physical poor health (Tully, Cosh, & Baune, 2013; Brosschot, Gerin, & Thayer, 2006).

The available measures of self-reported worry can be categorised into 'content-free' or 'content-based' measures (Joormann, & Stöber, 1997); the former focus on the frequency and intensity of worrying, and the latter focus on the content or themes on which the worries are based. The Penn State Worry Questionnaire (PSWQ: Meyer, Miller, Metzger, & Borkovec, 1990) is the most widely used 'content-free' measure of worry (Davey & Wells, 2006) that consists of 16-items that were developed to measure the frequency (e.g. "I am always worrying about something") and intensity (e.g. "My worries overwhelm me") of worry. It has also been developed in abbreviated (Hopko et al., 2003) and ultra-brief (Kertz, Lee & Björgvinsson, 2014) forms, and translated into many languages such as Chinese (Zhong, Wang, Li & Liu, 2009), French (Gosselin, Dugas, Ladouceur, & Freeston, 2001), and Korean (Lim, Kim, Lee & Kwon, 2008). There are also other content-free alternatives to the

PSWQ such as the The Dunn Worry Questionnaire (Freeman, et al, 2019), the Brief Measure of Worry Severity (Glastones, et al, 2005), and the Brief Measure of General Worry (Kelly, 2004).

It would appear that significantly less research attention has been paid to assessing the content or themes associated about which people worry. While the merit of approaching worry in terms of frequency and intensity has to be acknowledged (Gillis et al., 1995; Mennin et al., 2005), there are important reasons why the content of worries is also important. First, the content of worry has been shown to be a differentiating factor in many anxiety disorders (Dugas et al., 1998). Second, identifying the content of worry facilitates the provision of help and support that an individual may need (Millar et al., 1993). Third, the content of worry is related to the degree of distress that is experienced, for example, Tallis (1989) showed that people with clinical levels of anxiety worried more about personal topics than those who were non-anxious.

There is also some evidence that the content of worry changes across important developmental periods, particularly childhood and adolescence. Vasey et al. (1994) examined worries of children aged from 5 to 12 years and showed that the frequency and content of worry changed with age, with older children worrying more frequently and the content changed from being about physical wellbeing to worries about how they are perceived and evaluated by others. Older children were also more adept at elaborating on the outcomes of worry and their worries showed more complexity (Chorpita et al., 1997). Research on worry during childhood and adolescence is important as prolonged and increased levels of worry and anxiety during developmental periods have however previously been linked to negative outcomes in adulthood which include substance

dependence, depression and anxiety disorders (Woodward & Fergusson, 2001). Worry is also associated with negative outcomes during childhood and adolescence such as higher school dropout rates, lower academic and performance and diminished social functioning (Silverman et al., 1995).

It would appear that we know more about the frequency and intensity of worry compared to what children and adolescents worry about. Therefore, a systematic review was conducted to identify and synthesise the extant research literature that reported on the content of worry in young people. The primary aim was to identify the most common sources of worry and assess their contemporary relevance.

Method

Design

A systematic review was conducted and reported using the Preferred Reporting items for Systematic Reviews and Meta-Analysis (PRISMA:Moher et al, 2010). The review was registered with the PROSPERO database (PROSPERO CRD42019128240).

Search methods

A systematic search of published literature was conducted using the following databases, (ISI) Web of Science, PubMed (Ovid) Psycinfo, Scopus and ScienceDirect. The following search strategy was used for Web of Science and adapted for each database.

TS=((worry OR rumination OR worry* OR ruminat* OR concern* OR "worry about" OR "ruminate about" or "concern* about") AND (content OR theme* or domain* or cluster* or categor* or structure) AND ("factor analysis" OR questionnaire OR inventory OR scale OR

qualitative) AND (self-expressed or self-reported or "self reported" or "self expressed") AND (youth OR young OR adolescent* OR child* OR teen*)).

Study Selection

Three reviewers were involved in the study selection process (MO, GMcA, MS). Initial searches were completed by one reviewer (MO) and duplicates were removed. Results were independently screened for inclusion by title and abstract by 2 reviewers (GMcA & MO) and a decision to 'Include' or 'Exclude' was recorded, and there was an undecided option, 'Maybe', when the relevance of the paper was not clear. The third reviewer (MS) screened the studies which were either classified as 'Maybe' and also any studies for which agreement had not been reached by the other two reviewers. Consensus was reached by discussion between all three reviewers before proceeding to full text screening. All three reviewers independently reviewed the full text papers and consensus was reached on the studies to be included for data extraction. Criteria were applied that studies must (1) examine the content of self-reported worry concern and rumination of young people, (2) be published in English language, (3) published in peer reviewed journals, and (4) the participants had to be between 8 years old and 19 years old (studies that had a broader age range of participants, but reported results for the specified age range were included). Studies were excluded if they targeted clinical populations, with specific physical or psychological health problems, or if they did not use self-report or qualitative measurements.

Data Extraction

Data extraction fields were agreed and piloted by independent data extraction of two studies by each reviewer. The data extraction form was agreed by all three reviewers and one reviewer performed data extraction (MO). The extracted data included (1) the country in which the study took place, (2) details of the participants and how they were recruited, (3) how data was collected, (4) the worry-related themes that were identified, and (5) conclusions reached and any limitations of the study.

Data Synthesis

After data extraction, a narrative synthesis of all studies was completed. Quality and findings of each study were reported at an aggregate level. The content of worries as described in each paper was summarised and domains were generated. Quality criteria were used to assess each study based on (1) Representativeness of sample (sample size, representativeness to the general population, gender distribution of participants, appropriateness of age range etc.), (2) Data collection or generation method (3) Analysis (independent coders, quality of analysis methods etc.), (4) Reporting standards (results matching the discussion, informative descriptive statistics etc.). Each criterion was assessed and scored as 1 =Good, 2=Moderate, and 3-Poor, and an overall modal score was calculated.

Results

Initial searches returned 3,211 hits which was reduced to 2,596 after duplicates were deleted. Screening based on title and abstract screening resulted in 39 studies being retained. After third reviewer input at this stage, a further 24 studies were removed. Full

text analysis was then performed on 10 studies. After an examination of references 4

further studies were identified. Two of these were excluded as the papers could not be

located, the remaining two were added to final results. Figure 1 shows a flow diagram of the

process and results.

Figure 1 about here

Included studies

The final 12 studies included a total of 9,523 participants. Study sample size ranged

from 52 to 3,983. Four studies were conducted in the UK, three in the USA, 1 in each of

Singapore, Israel and Turkey. Two studies were conducted across multiple countries

(Netherlands and Belgium/ USA, Canada and Australia). Table 1 presents the final papers

included in the review.

Table 1 about here.

Study participants

All samples were recruited from schools and the studies were published from 1958

(Schutz, 1958) until 2017 (Fisher et al., 2017). The majority of studies recruited participants

from post-primary level education (Ang et al., 2007; Fisher et al., 2017; Friedman, 1991;

Miller et al., 1993; Miller & Gallagher, 1996; Schutz, 1958; Young et al., 2016), two studies

recruited from primary level education (Muris et al., 1998; Pintner & Lev, 2000), three

studies recruited from across primary and post-primary (D'andrea, 1994; Sahin & Sahin,

1995; Violato & Holden, 1987), and six of the 12 studies recruited volunteers (Ang et al.,

2007; D'andrea, 1994; Fisher et al., 2017; Miller et al., 1993; Muris et al., 1998; Young et al.,

2016). The youngest participants were recruited by Muris et al. (1998) and were aged 8

years old. The oldest were recruited by Sahin and Sahin (1995), Miller and Gallagher (1996) and Violato and Holden (1987) and were aged 19 years old. The broadest age range was 9 to 18 years old (D'andrea, 1994).

Data Collection

One study used an open question method of data collection (Friedman, 1991). Four studies used pre-existing scales (D'andrea, 1994; Sahin & Sahin, 1995; Pintner & Lev, 2000; Schutz, 1958): the Billett-Starr Youth Problems Inventory (Billet & Starr, 1956), the Worry Inventory (Adolescent Health Program, 1987), an inventory developed by Works Progress Administration at Teachers College and a scale developed by Violato (1989). Three studies were concerned with the development and validation of worry scales (Miller et al., 1993; Miller & Gallagher, 1996; Violato & Holden, 1987). Two studies developed their own questionnaires (Ang et al., 2007; Muris et al., 1998). One study performed an analysis of diary content (Fisher et al., 2017). Another, used pictures to stimulate discussion around issues related to worry (Young et al., 2016).

Summary of selected papers

Friedman (1991) examined the concerns of Israeli adolescents and compared the findings to those of Vasey et al. (1994) and reported that older adolescents reported significantly fewer problems compared to their younger counterparts. Vasey et al. found that worrisome thoughts increase in prevalence after the age of 8 years. These results may suggest a certain 'high point' of worry intensity in adolescents at a certain age. The most prominent concerns the participants expressed were centred on 'studies and career' and a 'Social I' category which represented interpersonal relations and use of leisure time. These

concerns were reported by 79% of the participants. Health concerns and drug use were reported to be of minimal concern and were endorsed by less than 1% of the participants. The study also identified concerns specific to the Israeli sample, about the mandatory army service and existential issues. These themes could be related to the specific political, cultural and social situation in Israel. For Jewish youth in Israel, transition to adulthood is closely associated with serving in the military and traditional and religious values (Levy et al., 2012). These sources of worry are expressed in statements such as 'Should I volunteer to a combat unit?' and 'What is the role of the Jews in the world?' which highlight the importance of culture and current socio-political situation as worry theme contributors.

Sahin and Sahin (1995) examined worry themes among Turkish youth. They used an existing scale by Violato and Holden (1987), and added an additional 10 items generated as a result of a pilot study and provided further validation by using factor analysis. The results largely replicated the original factor structure reported by Violato and Holden (1987) and was composed of 'Social Identity Concerns', 'Local and Universal Concerns', 'Interpersonal Relations', 'Personal Future Concerns' with the addition of 'Drug use' factor introduced by the findings of the study. The authors found that 'Personal future concerns' (a factor which included themes of education and career) was endorsed the most followed by 'Interpersonal Relations'.

Fischer et al. (2017) used a diary study to examine what worry sources and consequences were identified by adolescents aged 16 to 18 years. This qualitative approach provided information on many worry dimensions, such as extent of interference, emotion associated with the worry, it's consequences ('what would happen if the worry came true?') and the strength of belief that the consequence would happen. The strength of this study is

that it demonstrated the broad range of worries that adolescents have. However, the sample size was small and it was not clear which worries were exclusive to the healthy participants and which were associated primarily with the participants who were suffering chronic pain.

Young et al. (2016) compared worry themes reported by individuals aged between 15 and 18 years, with and without learning disability. 'Failure' was the most commonly reported theme. However, this 'failure' pertained mostly to an individual failing at school exams. This is similar to many other investigations of worry content, suggesting that school related issues are common (Table 1).

Schutz (1958) examined patterns of endorsement of different worry sources among teenage girls. The study used an existing inventory which was available in two versions- 'Junior' and 'Senior' and only items that existed in both were used. Additionally, the study examined worries that were deemed 'very serious' or 'moderately serious' by a panel of specialists.

The study of Native American youth by D'andrea (1994) was based on a small sample from a specific population. However, the study provides important insights pertaining to universality and specificity of certain worries. While school related problems were highly endorsed, the fear of one of losing a parent was common. While the study did not explore the predictors of specific worries, the authors theorise that these results may be due to sampling from a matriarchal culture. Overall worries of girls were more centred on maintaining stability of both family and community.

The goal of the studies by Millar et al. (1993) and Millar and Gallagher (1996) was to develop and validate the 'Things I Worry About' (TIWA) scale that assessed worry themes

among nonadults. The initial study in 1993 started with 86 items from eight pre-determined categories, but these were refined through factor analysis into ten categories. The study also used open-ended questions and the analysis of these responses identified a further 3 themes which were not examined statistically during the initial development. Later, in 1994, a revised TIWA scale including the 13 categories was administered to a large sample of young people. This examination provided moderate changes to the scale retaining the number of 13 factors but not the theorised structure (Table 1). Further analysis suggested a large second order factor model with each of the subscales loaded onto a single underlying construct. Academic schoolwork constantly remained the most endorsed theme among all ages sampled (13 to 19 years). The study of Millar and Gallagher (1996) presented the highest quality score out of all the papers included in the study. It, however, faced a problem of potentially not capturing contemporary problems of adolescents which we expand upon in the discussion section.

Ang et al. (2007) developed a measure aimed to assess concerns of adolescent Asian students. Researchers used both exploratory and confirmatory factor analyses to arrive at a 4-factor solution (Table 1). The factors were labelled 'Family Concerns', 'Peer Concerns', 'Personal Concerns' and 'School Concerns'. However, the authors do not provide information pertaining to which of the factors was the most endorsed. The study presented some unique variations that the authors ascribe to the population used when compared to previous examinations of worry. Namely, the 'I have confidence in myself' item, expected to load onto the 'Personal concerns' factor, loaded more onto the 'School concerns' factor. The authors note that school achievements are an important part of the identity of Singapore youth.

The study by Pintner and Lev (1940) does not satisfy certain modern standards of conducting scientific research. For one, the worry themes were arrived at through non-statistical, non-systematic means. However, the study provides a window into what worry items were endorsed the most in the past. Interestingly, and in synch with more modern examinations, 'failing a test' was ranked the highest. Uniquely, 'witches' as a source of worry was endorsed by ~21% of participants (aged 10 and 11), it was however the least endorsed item.

Muris et al. (1998) examined normative worry in children. They have used a scale developed for the purposes of the study and also interviewed their participants with regards to worry frequency and content. The study does not provide information about how the individual items of the scale cluster together. While qualitative examination that supplemented Muris et al. examination remedies that to an extent, if the examination was to be used in clinical settings It presents a cost of not being a one-tool parsimonious method. Nevertheless, school performance, in line with other examinations of worry, was endorsed the most.

The study by Violato and Holden (1987) was obtained for the purposes of the current review through reference screening. Their scale was used as a base for the examination provided by Sahin and Sahin (1995; Table 1). The researchers used both exploratory and confirmatory factor analyses to arrive at a four-factor solution. School and physical appearance were endorsed the highest with 'existential problems' being considered secondary. They have also suggested two 'identity' constructs dubbed 'Personal Self' and 'Social Self'.

Limitations of the studies

The present study faces a number of limitations. This was to be expected as included studies spanned close to 80 years of scientific inquiry, used a wide variety of methods and different samples. For example, the methods used by Schutz (1958) as well as Pintner and Lev (1940), would be considered dated by contemporary standards, therefore they may serve as a historical description of worry rather than reflecting current themes. However, most of the studies included in this review were performed at least two decades ago, with qualitative examinations being more modern (Fisher et al., 2017; Young et al., 2016). These examinations however weren't specifically aimed at identifying worry content of the general populations and therefore only analyses of parts of these studies could be included. A number of studies were performed using non-western populations. This highlighted an important issue in the study of Worry- worries influenced by culture, socioeconomic status, current or recent political events, war, religious sensibilities, gender roles etc. may not be transferrable to all populations and as such, presented a challenge to the generalisability of the findings. Strong cross-loadings of individual factors were also identified in a number of studies as well as insufficient Cronbach's α (see: Violato & Holden, 1987; Sahin & Sahin, 1995; for a rationale: Tabachnick & Fidell, 2007).

Discussion

The aim of this review was to investigate available measures of worry themes among nonadults. We have found many different themes reported, with concerns pertaining to academic achievements being endorsed the most across the studies. The construct of 'worry' was conceptualised as 'worry', 'concern' or 'personal problem' despite the search terms including category of 'rumination'.

One of the aims of this study was to identify areas of worry expressed by non-adults. Therefore, no consideration was given towards exact extent to which certain worry themes were endorsed, their consequences, frequency, affective response and perceived impairment associated with the worry. We have found that themes of personal competence related to school performance were a consistent most-endorsed theme. The similarity between the studies in this regard provides initial evidence towards a certain universality of these concerns that stem from both developmental dynamics and tasks placed upon adolescents by the culture they reside in. However, one must be mindful that the results are limited by the fact that studies included generated their data based on samples from developed countries with access to national education programmes. It is therefore impossible to assume what role the involvement of nonadults in school-life plays when examining worry (e.g. would the levels of worry diminish in the environment where education is not provided, would different themes increase in endorsement etc.). However, cultural context certainly plays a role. This is exemplified in 'Army service' emerging as a theme in the study by Friedman (1991) which included adolescents for whom army service and threat of being involved in armed combat is salient and in the study by D'andrea (1994) which suggested high endorsement of worries pertaining to the fear of losing one's parent (not addressed as salient). Ang et al. (2007) suggest that domain specific problems in an individual's environment predict domain specific concerns expressed by that individual. This, while not empirically tested, offers a promise of examining one's concerns to infer how one perceives their environment.

Differences in worry domains may have been influenced by methodology used. The difference in factors arrived at through factor analyses is jarring. The individual items from each analysis present some degree of similarity (expressed in 'school performance' being

consistently highly endorsed), with minor cultural, socioeconomical and zeitgeist differences (e.g. concerns associated with army service, fear of witches). The inconsistency of the themes arrived at could perhaps be explained by different examination of the themes differing in 'resolution' - e.g. the theme of 'Personal Competence' conceptualised in the study by Fisher et al. (2017) comprises of many sub-themes including school performance which was recognised as a separate theme by other examined studies. Similarly, most of the items included in 'Social efficacy' and 'Communication at home' from the study of Millar and Gallagher (1996) were included (or represented by similar items) in the factor 'Interpersonal relationships' from the study by Sahin and Sahin (1995). This could be suggestive of different levels of organisation between the narrow facets and broad domains of worry themes. This is perhaps exacerbated by using different methods of measurement.

While not examined in the present review, future studies should focus on establishing themes that maximise clinical utility, perhaps through factor analytical approach to worry themes. Furthermore, measures of worry domains should be frequently updated not only to utilise newer, more refined methods but also to 'catch-up' with the everchanging culture zeitgeist. The challenge of developing such a scale would be its ability to be utilised in cultures outside of the sample it was conceived with, for example, in terms of the ever-shifting socio-political landscape (e.g. 'the aids problem', Sahin & Sahin, 1995). Another caveat stemming from the present examination pertains to utility of the findings. Examining themes of worry in a broad or narrow way should be tempered by their importance relative to specificity of what those themes may predict.

Notably, this need for providing updates for psychometric measures of 'worry' has seemingly gone unaddressed in the recent years. The last twenty years brought a generation

of adolescents facing unique problems compared to their predecessors which can be mainly attributed to the proliferation of internet and social media use (Borca et al., 2015). Existing measures of worry themes have not been developed in accordance with contemporary social landscape which is dominated by constant internet access with its detriments (e.g. using internet as a coping mechanism to a pathological extent- McNicol & Thorsteinsson, 2017) and advantages (e.g. empathy development; Vossen & Valkenburg, 2016). Future research should be focused on updating or developing new scales that account for present sociocultural landscapes.

Currently, no one approach to the measurement of worry themes can be considered a 'golden standard'. Reliable, valid and user-friendly self-report questionnaire could be a cost-effective way to obtain information on what young people worry about. However, the field of worry measure currently faces a problem of self-report questionnaires being developed over 20 years ago and qualitative measures not achieving the goal of being cost-effective and able to be deployed on a large scale.

While, our search addressed only self-reported measures of adolescent worry that examined themes, another considerable body of worry research is concerned with examining worry frequency in a trait-like manner (Meyer et al., 1990). Example of the latter-the Penn State Worry Questionnaire, holds over 4000 citations and is a classic in worry research. However, studies of themes of worry and frequency of worry seem to be largely ignorant of each other, as exemplified in measures gathered in the present examination-not one developed scale examined frequency of worry in addition to worry themes.

In conclusion, there have been many attempts at measuring themes of adolescent worry. Current scientific nomenclature is seemingly not differentiating between 'worry' and

'concern' and is using the terms interchangeably. Out of many themes identified, school

performance emerged as a constant, most endorsed theme. Quantitative measures of worry

themes differ in how these themes were conceptualised- some have found very specific

themes, others arrived at more broad classifications. Psychometric scales of measurement

are in need of an update to reflect problems of contemporary adolescents. Available

measures do not examine worry themes in terms of frequency of worry. Currently, the

question of 'what do children and adolescents worry about' can only be answered using

qualitative methods as the last scale developed using a representative sample was

conceived more than 20 years ago.

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Table 1. Summary of papers included in the systematic review.

Citation	Country	Sample and Recruitment	Data Collection method	Themes	Conclusion	Limitations
Areas of concern and sources of advice for Israeli adolescents (Friedman, 1991)	Israel	N=1645 (42% female) Age: 15 and 17 year olds Method: Three schools selected at random, all 11th and 9th graders sampled. Representative of the population.	Demographic information obtained. An open-ended question asking the participant to list their three predominant worries.	• School studies • Army service • Interpersonal relations • Use of leisure time • Relationships with family • Future • Politics • Purchases • Appearance • Youth movement • Health • Relationships with teachers • Existential issues	Boys more concerned with existential issues, army service, studies and career than girls. Girls more concerned with personal issues (relationships, appearance).	Study from nearly 30 years ago Arbitrary classification of themes (not arrived at through replicable, statistical means) Specific to Israel population
Dimensions of Concerns - the Case of Turkish Adolescents (Sahin & Sahin, 1995)	Turkey	N=957 (49% female) Age: 11 to 19 Sampled from six schools in Ankara.	Using an existing scale (Violato & Holden, 1987). Pilot study included an	• Social and identity concerns • Local & Universal concerns • Interpersonal Relations • Personal future	Concerns pertaining to 'personal future' reported as most pressing.	Study from 1995 – not contemporary Some factor loadings below 0.32, cross loadings not reported.

		Representative of the population.	open-ended question out of which 10 additional questions were generated.	• Use of Drugs		
Everyday worry in adolescents with and without chronic pain: a diary study(Fisher et al., 2017)	UK	N= 60 (40 with no chronic pain out of which 79% female) Age: 16 to 18 Sampled from five schools. Volunteer participants	Qualitative analysis of the contents of diaries kept over the course of seven days.	• Health • Relationships • Personal Competence • Other	Personal competence reported being the predominant worry followed by the worry of being judged by others.	Small sample size
Leaving school: A comparison of the worries held by adolescents with and without intellectual disabilities (Young et al.,2016)	UK	N= 52 (27 with no intellectual disabilities out of which 64% female) Age: 15 to 18 Volunteer sample from schools in western Scotland	Qualitative. Participants were given pictures representing worry topics (e.g. workplace) and asked whether this was a source of their worry.	• Death • Failure • Decisions • School • Relationships • Family • Bullying • Work • Further Education • Health • Friendship • Money	Predominant worries among individuals with no intellectual disability concerned topis of failure and future education (failing at college exams).	Small sample size Study was focused on worries pertaining to young adolescents starting their university education.

			Interviewer asked them to describe those subjects of worry.	- Loneliness - Home - Appearance		
Patterns of personal problems of adolescent girls (Schutz, 1958)	U.S.A	N= 500 (100% Female) Age: adolescent U.S.A high school students, grades 10 and 11 – presumably 15 to 17 Two Florida, high Schools sampled as a part of the national standardization program in May 1956.	Billett-Starr Youth Problems Inventory (Billet & Starr, 1956)	- General personal anxiety and insecurity - Tension concerning relationships with others - Difficulties in getting along with parents	Identification of three clusters of worry.	Study does not meet contemporary standards. No cluster endorsement reported. Study included only adolescent girls.
The concerns of Native	U.S.A	N=148 (49% female)	The Worry Inventory	Personal worries	School related worries and fear	Study from 1994 – not contemporary

American youth (D'andrea, 1994)		Age: 9 to 18 Volunteer participants from one school in North Dakota.	(Adolescent Health Program, 1987)	• Family-Related Worries • School-related worries • Peer-related worries • Moral/social worries	of parents dying showed strongest responses.	Specific sample (Lakota Native Americans)
The "Things I Worry About" Scale: Further developments in surveying the worries of postprimary school pupils (Millar & Gallagher, 1996)	UK	N= 3983 (60% female) Age: 13 to 19 Representative sample from postprimary schools in Northern Ireland	"Things I Worry About" Scale (Millar et al., 1993)	• Starting work/college • Opposite sex • Home relationships • Academic schoolwork • Choosing a job/course • Verbal Communication • Obtaining a job/course • Myself • Communication at home • Money Matters • Social Efficacy • Change and Transition • Information Seeking	Academic schoolwork theme endorsed the most	Study from 1996 – not contemporary

Validation of the adolescent concerns measure (ACM): Evidence from exploratory and confirmatory factor analysis (Ang et al., 2007)	Singapore	Study 1 (EFA): N=619 (53% Female) Age: 12 to 17 Voluntary sample from a single school in Singapore Study 2 (CFA): N=811 (48% Female) Age: 11 to 17 Voluntary sample from two schools in Singapore	The study developed the questionnaire	• Family Concerns • Peer Concerns • Personal Concerns • School Concerns	Four themes identified	Asian sample
Worries of school children (Pintner & Lev, 1940)	U.S.A	N= 540 (50% female) Age= 10 and 11 Sampled from children in New York schools.	Study uses an inventory developed as a project by 'Works Progress Administration at Teachers College'. No	• School • Family • Personal Health and Wellbeing • Social Adequacy • Economic • Ornamental	Worries about school performance and family issues were most endorsed.	Study from 1940 – not contemporary Conclusions derived from frequency of answers.

			citation provided.			
Worry in normal children (Muris et al., 1998)	Netherlands and Belgium	N= 193 (46% female) Age= 8 to 13 years Voluntary sample from three regular primary schools in Netherlands and Belgium.	Questionnaire developed for the purposes of the study. Study also used an interview.	• School performance • Dying or illness of others • Getting sick • Being teased • Making mistakes • Appearance • Specific Future events • Parents Divorcing • Whether other children like me • (More worries endorsed by less than 5 participants)	School performance endorsed the most	Study from 1998 – not contemporary
***A Confirmatory factor analysis of a Four-Factor Model of Adolescent	Canada U.S.A Australia	N= 439 (40% female) Age= 12 to 19 Representative sample gathered	Study validated the questionnaire	• Health and drugs • Future and career • Personal self • Social self	School related and physical appearance were the most endorsed.	Medium (~0.5) cross-loadings between items of social and personal self. Study from 1987 – not contemporary

Concerns (Violato & Holden, 1987)		from 10 junior high schools and highschools				
***Surveying Adolescent Worries: Development of the 'Things I Worry About' Scale (Millar et al., 1993)	UK	N= 387 (50% female) Age= 15 and 16 Voluntary sample taken from 10 post-primary schools.	Questionnaire developed from a review of previous studies. Open-ended questions included in the study.	• Myself • At Home • Job finding • Social Confidence • Choosing a Job • Opposite Sex • Verbal Communication • Starting Work • Information seeking • Powerlessness	The study reported the factor structure of the questionnaire only. Information about endorsement of a particular factor is not provided.	Study from 1993 – not contemporary

Table 2. Quality assessment ratings of final papers included in review.

| Authors (year)	Representativeness of sample	Data collection or generation method	Analysis	Reporting standards:	Modal global rating:
Friedman, 1991	1	2	3	2	2
Sahin & Sahin, 1995	1	1	2	2	2
Fisher et al., 2017	3	1	2	1	2
Young et al.,2016	3	2	2	1	2
Schutz, 1958	2	3	3	3	3
D'andrea, 1994	3	1	2	2	2
Millar & Gallagher, 1996	1	1	1	1	1
Ang et al., 2007	2	1	1	3	2
Pintner & Lev, 1940	2	2	3	3	3
Muris et al., 1998	2	2	1	1	2
Violato & Holden, 1987	1	1	2	2	2
Millar et al., 1993	2	1	1	1	1

Note: Ratings are as follows: 1-Good; 2-Moderate; 3-Poor
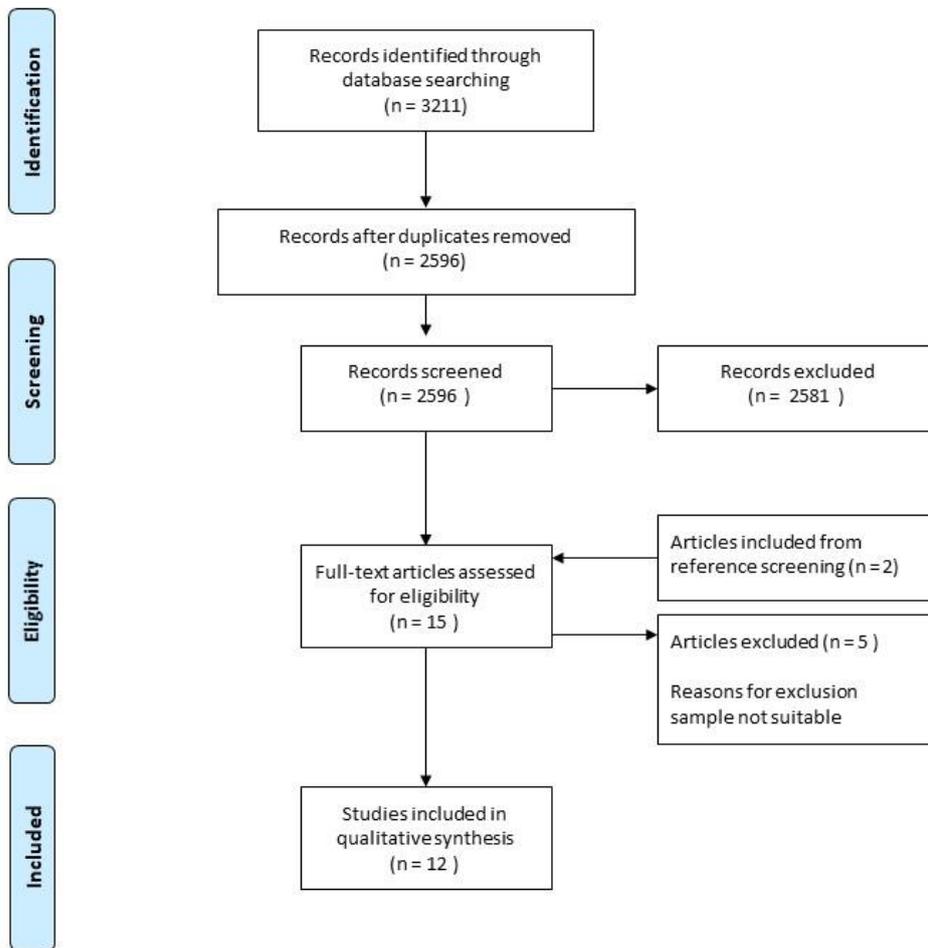
Figure 1 Flow diagram of literature search process.