# Understanding Deliberate Self-Harm in Adult Populations: An Integrative Review

by

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## Abstract

Self-harm is an important issue and is considered a significant public health problem, especially for adolescents (Cottrell, 2013; Mcmahon et al., 2013) and is arguably an important topic for adults. This study therefore looked at creating a more holistic understanding of self-harm in adult populations and examines if there are qualitative differences between adult and adolescent self-harm. This was done by conducting an integrative review on studies done on the topic of self-harm in community-based populations of adults between the years 2001 and 2020. The categories of interest consisted of: demographics; risk factors; motivators; techniques of self-injurious behaviour; social contagion; assessment; treatment; and prevention. After this, the results were compared to the results found in an integrative review on adolescent self-harm conducted by Wilkinson (2011) that encompassed studies done from 2001-2010, along with an update conducted during this study to encompass 2011-2020 to ensure comparability. An additional analysis was conducted to look at adult self-harm and the increasing presence of social media. Results show that self-harm is a relevant issue for adult populations in addition to adolescents. Also, even though there are similarities between self-harm in adolescence and adulthood, certain differences are also apparent. Finally, with the increasing use of technology, there is the potential for both harmful and helpful impacts on self-harm. To conclude, self-harm is a prevalent issue in adulthood and needs to be addressed specifically instead of treating it the same as it appears in adolescence.

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# CHAPTER I

# RESEARCH PROBLEM

## Introduction

Self-harm is an important issue and is considered a significant public health problem, especially for adolescents (Cottrell, 2013; Mcmahon et al., 2013). Self-harm is one of the most common reasons for hospital admission with 29.7% of adolescent inpatients and 38.5% of adolescents in partial-hospitalization programs in Canada engaged in self-harm (Nixon et al., 2002). Also, an estimated 220,000 episodes are dealt with by hospitals in the United Kingdom each year resulting in substantial health service costs (Butler, 2016; Hawton et al., 2007; Karasouli et al., 2011; Sinclair et al., 2011). In particular, self-harm is a broad term that encompasses a wide range of behaviours with varying lethality and intention (Coughlan, Tata, & MacLeod, 2017). These behaviours include self-cutting, self-poisoning, burning, and risky sexual behaviour. Self-harm is a pressing issue given the health implications of self-harm, such as risk of mortality. For instance, engaging in self-harm is one of the leading predictors of an individual dying by suicide (Ougrin, Boege, Stahl, Banarsee, & Taylor, 2013). However, with the majority of research done on self-harm being focused on adolescent populations, research findings are often generalized along developmental lines. This indicates for a need with regards to a comprehensive understanding of the differences and similarities between adolescents and adults with regards to self-harm in order to determine if there is overgeneralization occurring across these developmental lines. This is why conducting an integrative review on adult self-harm and comparing the results to the review on adolescent self-harm done by Wilkinson (2011) will be helpful in creating a more holistic understanding of self-harm. Wilkinson's (2011) review was selected for comparison as it is an integrative review that focuses on community-based samples instead of inpatient or hospital samples. By creating a more holistic understanding of self-harm in adult populations there is the possibility to improve detection and treatment by health care workers.

## Purpose

Research conducted on self-harm has had issues with inconsistencies on what is defined as self-harm because different researchers use different definitions that encompass different

types of behaviours (Wilkinson, 2011). This is why an integrative review on previous research is important to help create a more holistic understanding of self-harm. Hence, the purpose of this study was to conduct an integrative review of studies done about self-harm in adult populations to discover common themes from these studies following the steps for an integrative review presented by Whittemore and Knafl (2005). In addition, this study also examined if there are qualitative differences between adult self-harm and adolescent self-harm by comparing the results of the integrative review with the integrative review on adolescent self-harm conducted by Wilkinson (2011).

**Prior empirical studies that inform the current study's conceptualization and methodology.** The framework for integrative reviews put forward by Whittemore and Knafl (2005) was used to conduct the different stages of an integrative review that was outlined. These stages consist of problem identification, literature search, data evaluation, data analysis, and presentation and have issues specific to integrative reviews that need to be considered. First, for the problem identification stage, a clear identification of the problem and variables of interest is needed to narrow down the search and bring clarity to the purpose of the review. Second, during the literature search stage, explicit justification of sampling decisions should be shown through clear documentation of search terms, databases, inclusion and exclusion criteria, and additional search strategies. Third, during the data evaluation stage of an integrative review, that includes both empirical and theoretical sources, utilizing different ways of evaluating quality depending on the type of source being evaluated. The stage of data analysis can be broken down to data reduction, data display, data comparison, conclusion drawing, and verification. Fourth, during data reduction, the primary sources need to be divided into subgroups with this review utilizing predetermined conceptual classifications for these subgroups. Fifth, during data comparison, identifying higher-order clusters that are meaningful should be the starting point with additional potential strategies also being utilized. These strategies consist of "noting patterns and themes, seeing plausibility, clustering, counting, making contrasts and comparisons, discerning common and unusual patterns, subsuming particulars into general, noting relations between variability, finding intervening factors, building a logical chain of evidence" (Whittemore and Knafl, 2005, p. 551). Sixth, during conclusion drawing and verification, a record of the entire process will be kept to avoid any premature analytic closure or the excluding of pertinent evidence. Additionally, when encountering conflicting results, a vote counting strategy can be utilized

while acknowledging that any conflicting results indicates a need for further research. Seventh, when presenting the findings, explicit details from the original sources will be used to support any conclusions and show that it did not exceed what the evidence showed. In addition to the framework presented by Whittemore and Knafl (2005) the integrative review done by Wilkinson (2011) served as a lens for the organization and analysis of this review in order to have the ability to compare the results found from each review. Therefore, the definition of self-harm is the same as the one used by Wilkinson (2011) and consists of "the deliberate act of causing harm to oneself through cutting, burning, mutilating, rubbing or other methods of trauma in the body tissue, without the intent to commit suicide" (Nock & Prinstein, 2004; p. 120-121 Wilkinson, 2011). Additionally, the same categories used by Wilkinson (2011) were utilized to organize research findings consisting of: demographics; risk factors; motivators; techniques of self-injurious behaviour; social contagion; assessment; treatment; and prevention with the addition of prevalence. Once the common themes were identified for each category a comparison was done between the findings of this review and the one done by Wilkinson (2011) to see if there are any similarities or differences between the themes found in each category.

## Background

### Definitions of Self-Harm

**Differing terminologies.** Research done on self-harm utilizes not only different definitions but also the terminology used by the researcher (Long et al., 2013; Mangnall & Yurkovich, 2008). These different terms include, but are not limited to, self-harm (Mangnall & Yurkovich, 2008), deliberate self-harm (Long et al., 2013), self-injurious behaviour (Alper & Peterson, 2001; Bockian, 2002), repeated self-injury (Bunclark & Crowe, 2000), self-wounding (Huband & Tantam, 2000), parasuicide (Conaghan & Davidson, 2002; Kreitman & Casey, 1988), self-mutilation (Favazza, 1996; Ross & Heath, 2002; Suyemoto, 1998; Zlotnick et al., 1996), episodic and repeated self-injury (Favazza, 1998), and autodestructive behaviour (Kocalevent et al., 2005). Researchers have pointed out that the term self-mutilation carries judgemental undertones as it evokes strong emotions such as horror and disgust and attaches a stigma to these behaviours (Long et al., 2013; Mangnall & Yurkovich, 2008; Walsh, 2006). The different terms used to describe self-harm present a clear challenge to build a coherent understanding and conceptualization of this phenomenon (Muehlenkamp & Gutierrez, 2004) and

the ability to compare studies becomes difficult (Wilkinson, 2011). Specifically, self-harm and self-injury are the two terms that are commonly used to describe non-suicidal self-hurting behaviours. The former (i.e., self-harm) is more often used in European nations, whereas the later (i.e., self-injury) is used more often in the United States (Tørmoen et al., 2013). Tørmoen and colleagues (2013) decided to use the term non-suicidal self-harm giving the reason that non-suicidal self-injury does not include overdose. This shows that, depending on the terminology chosen by a researcher, different behaviours might be examined. Hence, what self-harm or self-injury means depends on how researchers conceptualize their studies and their operational definitions. This highlights the pressing need to have a comprehensive and systematic review on what research has been conducted in this topic to better identify and understand any research gaps.

**Definition of self-harm**. Self-harm or deliberate self-harm is a broad category encompassing many different types of behaviour (Coughlan, Tata, & MacLeod, 2017). For the purpose of this study self-harm is defined as "the deliberate act of causing harm to oneself through cutting, burning, mutilating, rubbing or other methods of trauma in the body tissue, without the intent to commit suicide" (Nock & Prinstein, 2004; p. 120-121 Wilkinson, 2011). The reason this definition is selected compared to other options is because this is the definition used in Wilkinson's (2011) integrative review on adolescent self-injury. In order to compare the results from this study's integrative review to that of Wilkinson (2011) it is imperative to utilize a similar definition to ensure that the study is researching the same phenomenon. It is important to investigate self-harm without suicidal intent because of distinctions found between suicide and self-harm. Distinctions consist of intent, lethality, frequency, cognitive difficulties, psychological aftermath, precursors, method, and attitude towards life. These distinctions make it so separate research done on non-suicidal self-harm will better conceptualize the phenomenon and not ignores the differences.

## Distinction Between Self-Harm and Suicide

**Relationship between self-harm and suicide.** A lot of research has shown the relationship between these two phenomena (Appleby et al., 1999; Bowers et al., 2010; Hunt et al., 2007; Hawton et al., 2003; Mars et al., 2014; Powell et al., 2000; Stewart et al., 2012; Tørmoen et al., 2013). Previous engagement in self-harming behaviour regardless of suicidal intent is one of the two most consistent predictors of inpatient suicide with the other being

depressive symptoms (Bowers et al., 2010; Stewart et al., 2012). Many studies have found an elevated risk for suicide in those who have previously engaged in self-harm without suicidal intent (Appleby et al., 1999; Bergen et al., 2012; Cooper et al., 2005; De Moore & Robertson, 1996; Harris & Barraclough, 1997; Hawton et al., 2012; Hunt et al., 2007; Jenkins et al., 2002; Karasouli et al., 2011; McMahon et al., 2014; Ostamo & Lönnqvist, 2001; Owens et al., 2002; Stewart et al., 2012; Suokas et al., 2001; Suominen et al., 2004; Tejedor et al., 1999; Tidemalm et al., 2015; Tidemalm et al., 2008; Whitlock et al., 2013) with some finding more specific aspects that lead to an increased risk for suicide such as a longer history of self-harm (Powell et al., 2000; Stewart et al., 2012), type of mental disorders present (Tidemalm et al., 2015; Tidemalm et al., 2008), method used (Bergen et al., 2012; Runeson et al., 2010; Tidemalm et al., 2015), repeated self-harm (Bergen et al., 2012; Christiansen & Jensen, 2007; Nordentoft et al., 1993; Tidemalm et al., 2015; Zahl & Hawton, 2004), and increased age (Haukka et al., 2008; Hawton & Harriss, 2008; Hawton et al., 2003; Tidemalm et al., 2015). In addition to research on self-harm being a risk for suicide, there has also been research done on factors found in individuals who engage in both behaviours. Studies have also shown that adolescents that engage in both self-harm and attempt suicide tend to exhibit more mental health problems, in particular depression and anxiety, impulsiveness (Stanley et al., 2001), problem behaviours (Guertin et al., 2001), depressive symptoms, and current suicidal ideation (Brausch & Gutierrez, 2010; Cloutier et al., 2010; Dougherty et al., 2009; Jacobson et al., 2008; Muehlenkamp & Gutierrez, 2007; Wong et al., 2007) compared to other self-harming adolescents (Tørmoen et al., 2013). Given the relationship shown between self-harm and suicide, researchers have looked at conceptual frameworks to explain the relationship.

**A continuum perspective**. Suicide and self-harm may be researched simultaneously in studies (Gholap, Saraf, Santre, & Bagle 2018; Hawton et al., 2012; Linehan, 1997; Mars et al., 2015; McMahon et al., 2014; McMahon et al., 2010; Muehlenkamp & Gutierrez, 2004; Stanley et al., 1992) and the two terms are often used interchangeably. This is because self-harm arguably is a continuum of differing lethality and therefore there is no distinction between self-harm without suicidal intent and suicide attempts (Linehan, 1997; Muehlenkamp & Gutierrez, 2004; Stanley et al., 1992). This means that mild self-harming behaviours without suicidal ideation (self-hitting) sit on one side of the continuum, whereas lethal suicide (firearms) sits on the other side of the continuum. McMahon and colleagues (2014) noted that males with a history

of self-harm have profiles similar to those who die by suicide, with respect to anxiety, impulsivity, drug use, and peers engaging in similar behaviour. Given the similarities between those who self-harm and those who die by suicide being more evident in male rather than in female populations, the continuum of self-harm and suicide might be more applicable to male populations (McMahon et al., 2014). This continuum has also been mapped onto the prevalence of incidents requiring differing intensity of healthcare intervention. Researchers refer to this as an 'iceberg' where the tip of the iceberg is the visible yet rare event of suicide, followed by the higher rates of self-harm that are treated in the hospital, and finally, the common but often invisible self-harm behaviours that do not receive any hospital treatment and therefore are unnoticed by health services (Hawton et al., 2012; McMahon et al., 2014).

**Distinct conceptualizations**. Although there is support for a continuum model of self-harm, self-harm and suicide are considered distinct phenomenon and this conceptual distinction has received some empirical support (Chang et al., 2014; Larsson & Sund, 2008; Laye - Gindhu & Schonert - Reichl 2006; Mars et al., 2014; Muehlenkamp, 2005; Muehlenkamp & Gutierrez, 2004; Muehlenkamp & Kerr, 2010; Stewart et al., 2012; Tørmoen et al., 2013; Walsh, 2006; Wichstrøm, 2009; Wilkinson et al., 2011; Wong et al., 2007). A two-tiered, hierarchical conceptualization best captures the nuances of self-harm and suicide. Self-harm can be considered as an umbrella term that involves any harming behaviour regardless of the individual's intention to die, meaning that it is on the top of a two-level hierarchy. Underneath this broad category, two subcategories (suicide attempts and non-suicidal self-harm) emerge. They belong on the lower level in the hierarchy (Tørmoen et al., 2013). This conceptual organization implies that self-harm and suicide are related but distinct constructs, whereby placing them on a continuum ignores the nuances of these two constructs (Tørmoen et al., 2013).

**Non-linear prediction from self-harm to suicide**. If the continuum perspective is applicable, mild self-harm should predict later and more severe forms of self-injurious behaviours or suicidal attempts. In contrast, Stewart and colleagues (2012) did not find such a clear pattern with an equal number of suicide attempts preceding and following self-harming episodes. The hierarchical perspective helps to explain the different rates of overlap between self-harm and suicides. Mars and colleagues (2014) found that 30% of those classified in suicidal groups also engage in non-suicidal self-harm, while others state 60% of suicide cases previously engaged in self-harm (Hawton et al., 2003; Tørmoen et al., 2013). This shows that self-harm

should be considered as a broad category subsuming both behaviours with and without suicidal ideation, given that a significant group of individuals who report engaging in non-suicidal self-harm also attempting suicide (Jacobson et al., 2008; Muehlenkamp & Gutierrez, 2007; Tørmoen et al., 2013). Furthermore, there were individuals who have attempted suicide previously engaging in non-suicidal self-harm later (Guertin et al., 2001; Stanley et al., 2001; Tørmoen et al., 2013). More specifically, Tørmoen and colleagues (2013) proposed that those who engage in both suicide attempts and non-suicidal self-harm do not constitute a distinct population but actually show the overlapping of suicide and non-suicidal self-harm populations.

**Distinguishing between self-harm and suicides.** Several potential distinguishing factors between self-harm and suicide have been proposed: intent (Muehlenkamp, 2005; Muehlenkamp & Gutierrez, 2004; Stewart et al., 2012; Tørmoen et al., 2013; Walsh, 2006), lethality (Walsh, 2006), frequency, cognitive difficulties, psychological aftermath (Muehlenkamp & Kerr, 2010; Walsh, 2006), precursors (Stewart et al., 2012), method (Laye - Gindhu & Schonert - Reichl 2006; Muehlenkamp & Kerr, 2010; Walsh, 2006), and attitude towards life (Muehlenkamp & Gutierrez, 2004). First, the intent for pure form of self-harm is to either relieve themselves from too much or too little emotion and therefore make the pain more bearable so they can continue on living. By contrast, for suicide, the intent is to escape from one's suffering by ending their life (Muehlenkamp, 2005; Muehlenkamp & Gutierrez, 2004; Stewart et al., 2012; Tørmoen et al., 2013; Walsh, 2006). Second, in terms of lethality, those who died by suicide use high-lethality methods. Even though in cases where the same method is chosen, such as cutting, there are still differences found in terms of lethality. Individuals attempting suicide often choose more lethal locations on their body to cut, such as the neck. On the other hand, those engaging in self-harm may choose body parts such as the arms or legs, which are much less lethal in comparison. Only in very rare cases will an individual's pure self-harming behaviour result in death as the average lethality is relatively low in comparison to suicide (Walsh, 2006). Third, in terms of frequency of behaviour, in general, self-harm occurs at a much higher rate than suicide attempts (Muehlenkamp & Kerr, 2010; Walsh, 2006). This makes sense as those engaging in suicide, unless it is a failed attempt, would only engage in the behaviour once. Fourth, there are two differing cognitive difficulties experienced by those dealing with self-harm or suicide. A key characteristic of a suicidal crisis is cognitive constriction or dichotomous thinking where the individual thinks in radically narrow or constricted ways resulting in difficulties with problem-

solving. Self-harm, on the other hand, is characterized by disorganized cognition where there are only deficits in the ability to implement adaptive solutions; not problem-solving abilities as a whole (Muehlenkamp & Kerr, 2010; Walsh, 2006). Therefore, among those who self-harm, the action may relate to the cognition of getting a sense of control (Muehlenkamp & Kerr, 2010; Walsh, 2006). Fifth, in regards to psychological aftermath, self-harm creates an immediate reduction of emotional distress in the individual engaging in the behaviour whereas individuals who have had a failed suicide attempt normally feel no better or sometimes worse afterwards (Muehlenkamp & Kerr, 2010; Walsh, 2006). Sixth, research has shown that different direct precursors for suicide versus self-harm. Suicide has the precursor of achieved absconding events, which refers to one leaving the ward without permission, while self-harm tends to have the precursor of attempted absconding and were more distant of a precursor (Stewart et al., 2012). Seventh, those who self-harm are more likely to use more than one method. Laye - Gindhu and Schonert - Reichl (2006) found that 25% of individuals that engage in self-harm use multiple methods with a large amount of girls reporting using more than three methods, whereas those who attempt suicide more than once normally use the same method previously used (Muehlenkamp & Kerr, 2010; Walsh, 2006). Eighth, Muehlenkamp and Gutierrez (2004) found that those who self-harm report being less repulsed by life compared to those who attempt suicide and have less negative experiences, which might lead to a less negative attitude toward life. Given the different factors that can be used to distinguish self-harm from suicide it also makes sense that there are different risk factors for each.

**Risk factors for suicide and self-harm.** Research has shown different patterns with regards to risk factors for suicide and non-suicidal self-harm (Chang et al., 2014; Larsson & Sund, 2008; Mars et al., 2014; Tørmoen et al., 2013; Wichstrøm, 2009; Wilkinson et al., 2011; Wong et al., 2007). Although previous non-suicidal self-harm has been shown to be a risk factor for future suicide attempts and non-suicidal self-harm, poor family functioning was only shown to be a risk factor for future suicide attempts (Mars et al., 2014; Wichstrøm, 2009; Wilkinson et al., 2011; Wong et al., 2007), while anxiety disorders, hopelessness, female gender, and younger age were only risk factors for future non-suicidal self-harm (Mars et al., 2014; Wilkinson et al., 2011). Other studies have found factors such as higher depression (Wong et al., 2007), anxiety, substance use, greater life stress (Wong et al., 2007), suicidal ideation, and conduct problems (Wichstrøm, 2009), were more likely to know a friend who attempted or died by suicide, had

high internalizing, externalizing and total problem scores (Larsson & Sund, 2008), and lower socioeconomic status to be associated with those who attempt suicide (Mars et al., 2014). In comparison, low satisfaction with social support, young age of first engagement in sexual activity (Wichstrøm, 2009), higher IQ, and maternal education (Chang et al., 2014) were related to non-suicidal self-harm (Mars et al., 2014) These distinctions show up in the theories used to explain each phenomenon with suicide attempt explanations being extracted from theories of completed suicide and non-suicidal self-harm having theories related to emotional dysregulation applied to it (Tørmoen et al., 2013). Self-harm being understood as a distinct phenomenon from suicide still leaves a very broad category that can be broken down further into different classifications.

**Classification of Self-harm**

While both the definition of and distinctive features of self-harm are helpful for researchers to better understand this important topic, further classification will help make the research more focused. In the literature, there are several classifications for self-injury: stereotypic self-injury, indirect self-injury, and direct self-harm (Walsh, 2006). Stereotypic self-injury consists of behaviours engaged in by individuals with conditions such as developmental disabilities and includes behaviours such as self hitting or head banging (Walsh, 2006). The category of indirect self-harm includes behaviour such as eating disorders, substance abuse, and risky sexual behaviours. These behaviours all have an accumulative effect on health as opposed to being immediately damaging. This is why the term indirect is used, because the damage caused to the body is not immediate. Also, one may engage in these behaviours for other reasons than wanting to cause damage to their body (Walsh, 2006). The last category is direct self-harm, which has three levels of lethality and involves immediate tissue damage (Walsh, 2006).

**Prevalence of Self-Harm**

Self-harm seems to be a growing issue over the past decades. In the United States, since the 1980s, the rate of self-harm has grown by 150% (Walsh, 2006). In Ireland between 2007 and 2016 there was a 22% increase in self-harm rates (Griffin et al., 2018). The increasing rates may be in part due to an actual increase, but also more accurate measures of recording due to the increasing knowledge on self-harm (Walsh, 2006). While self-harm can occur in any age group, it is particularly an issue for teens and adolescents (Plante, 2007). The prevalence of those

engaging in self-harm can vary depending on the region or specific population (Mcmahon et al., 2013). In the general population the rate of self-harm has been found to be between 13% to 45% (Christian and McCabe, 2011; Cottrell, 2013; Guerreiro et al., 2013; Muehlenkamp & Gutierrez, 2004; Muehlenkamp & Gutierrez, 2007; Ross & Heath, 2002). In inpatient samples the rate has ranged from 30% to 61% (Brausch & Gutierrez, 2010; Jacobson et al., 2008; Muehlenkamp & Gutierrez, 2007). Looking at differences in self-harm rates according to countries a study done by Madge and colleagues (2008) found differences in prevalence based on gender for the countries of Australia, Belgium, England, Hungary, Ireland, Netherlands, and Norway. When looking at past year self-harm prevalence rates for females the range was 3.6% to 11.8% with the Netherlands having the lowest rate and Australia having the highest. Further, Australia, Belgium, England, and Norway all had self-harm prevalence rates of 10.4% or higher (Madge et al., 2008). In terms of past year self-harm prevalence for males the range was 1.7% to 4.3% with Hungary and the Netherlands having the lowest rates and Belgium having the highest (Madge et al., 2008). Additionally, England, Ireland, and Norway did not differ significantly from the rest of the countries on the rate of lifetime self-harm in males and Ireland did not differ significantly from the other countries on any prevalence rate (Madge et al., 2008). In addition to the prevalence of engaging in self-harming behaviours some studies have also reported the prevalence of having self-harming ideation. Laye - Gindhu & Schonert - Reichl (2006) found 42% of the adolescents having self-harm ideation, with 10% reporting that they were preoccupied with these thoughts. The authors also found gender differences in self-harming behaviours. Twenty percent of female participants reported engaging in self-harming behaviours while only 9% of males reported doing so. Additionally, females reported engaging in self-harm more frequently during the year prior to the study being conducted. Finally, in terms of duration, many females reported a duration that lasted beyond a year but 24% also reported only engaging in self-harm once or for a short period of time.

## Theoretical Framework

### The Coping Circumplex Model

Put forward by Krzysztof Stanisławski (2019), the coping circumplex model looks at integrating various coping distinctions to try to overcome some of the problems surrounding previous coping models found in stress psychology. Three of the more commonly known coping

models consist of Lazarus and Folkman's (1984) model of problem-focused and emotion focused coping, Carver and colleagues' (1989) COPE inventory, and Parker and Endler's (1992) model of task-oriented, emotion-oriented, and avoidance-oriented coping.

**Problem-focused versus emotion-focused coping.** The problem-focused versus emotion-focused coping model defines problem-focused coping as "managing or altering the problem causing the distress" and emotion-focused coping as "regulating emotional responses to the problem" (Lazarus and Folkman, 1984, p. 150). There are two major issues that are put forward with this model (Stanisławski, 2019). First, most ways of coping can fall under both problem-focused and emotion-focused coping and therefore this problem versus emotion model leads to an oversimplification of coping (Stanisławski, 2019). Second, emotion-focused coping consists of a very diverse category with different theorists include different coping behaviours under the category compared to others (Stanisławski, 2019).

**COPE inventory.** Carver and colleagues (1989) acknowledged the model of problem-focused versus emotion-focused coping as useful but insufficient and created a model of coping based on literature that consisted of thirteen coping dimensions. Five of the dimensions were sub-dimensions of problem-focused coping, five were sub-dimensions of emotion-focused coping, and three were categorized as 'less useful' strategies. These thirteen dimensions were used to develop the COPE inventory. Even though there have been improvements acknowledged by this model compared to that of Lazarus and Folkman (1984) there are still two issues that have been identified. First, the distinction between problem-focused and emotion-focused coping has not been confirmed by analysis (Stanisławski, 2019). Second, different numbers of factors have been found in the solutions of exploratory analyses of the COPE scales (Stanisławski, 2019).

**Task-oriented, person-oriented, and avoidance-oriented coping**. Parker and Endler (1992) tried to address the shortcomings of previous models by creating a model based on three coping styles. Task-oriented coping is strongly associated with the problem-focused coping found in previous models and can be defined as "strategies used to solve a problem, reconceptualise it (cognitively), or minimize its effects" (Parker and Endler, 1992, p. 325). Emotion-focused coping is seen to reflect a person-orientation which can be defined as "strategies that may include emotional responses, self-reoccupation, and fantasizing reactions" (Parker and Endler, 1992, p. 325). The third coping dimension, avoidance-oriented coping,

consists of both task-oriented and person-oriented strategies. Task-oriented avoidance refers to distractions such as substitute activities while person-oriented avoidance consists of seeking out other people and is referred to as social diversion. Although this model of coping shows strengths such as showing stability across cultures there are limitations. The most significant limitation is that it cannot explain the plethora of coping responses as it only encompasses three coping categories (Stanisławski, 2019).

**Defining coping.** In the coping circumplex model coping is defined as "both volitional and automatized, cognitive, emotional, and behavioral responses to stress" (Stanisławski, 2019, p. 4). There are three reasons behind defining coping as both volitional and automatized. First, it is difficult to determine whether a given stress response is conscious or automatized (Stanisławski, 2019). Second, it is difficult if not impossible to determine which items in the coping measures are deliberate or automatized responses (Stanisławski, 2019). Third, removing involuntary responses from coping research would impede on a comprehensive understanding of coping as those variables would be placed in an area of unexplained variation (Stanisławski, 2019).

**Coping categories**. Going deeper in the understanding of coping, Stanisławski (2019) put forward for different coping categories consisting of process, strategy, mode, and style as a way to better organize coping constructs. First, coping strategy is the "cognitive, emotional and/or behavioral response to stress associated with a particular function, e.g. calming down or solving the problem" (Stanisławski, 2019, p. 6). Second, coping process can be understood as "a sequence of strategies changing over time, related to the changes in the characteristics of the situation and changes in the psychophysical states of the individual" (Wrzesniewski, 2000, p. 47). Third, coping mode is a "set of coping strategies, which include very similar cognitive, emotional and/or behavioral responses to stress, but are associated with different functions" (Stanisławski, 2019, p. 6). Fourth, coping style is a "set of coping strategies which fulfills a specific function and is relatively stable over time as well as across a range of circumstances" (Stanisławski, 2019, p. 6). The addition of coping mode to the already existing categories of process, strategy, and style can be quite helpful in understanding coping behaviours that on the surface seem the same but in actuality are different. For instance, the use of humor depending on how the humor is being used can serve different functions. Making jokes about one's stress can be seen as a way to calm down, while making fun of the situation as a way to calm down but also

disregard the problem (Stanisławski, 2019). This concept of coping mode can also be applied to the distinction between self-harm and suicide. Two individuals engaging in cutting of their skin could be seen as engaging in identical behaviours. However, if one is attempting suicide while the other engaging in self-harm, it can be seen that these behaviours serve different functions given the different intents behind them (Muehlenkamp, 2005; Muehlenkamp & Gutierrez, 2004; Stewart et al., 2012; Tørmoen et al., 2013; Walsh, 2006). By looking deeper than simply what the behaviour appears to be and instead focusing on the function it serves it can help better understand the phenomenon of self-harm.

**Problem coping and emotion coping.** In the coping circumplex model Stanisławski (2019) makes the assumption that when an individual deals with a stressful situation they face two tasks consisting of problem solving and emotional regulation. These two tasks correspond to the two dimensions of the coping circumplex model: problem coping and emotion coping. Problem coping consists of whether the individual works to solve the problem or avoid it. High levels of problem coping indicate active problem solving while low problem coping involves problem avoidance (Stanisławski, 2019). Emotion coping involves how the individual engages in emotion regulation while under stress. High emotion coping indicates positive emotional coping whereby the individual regulates their emotional responses to the problem. On the other hand, low emotion coping indicates negative emotional coping such as venting emotions or ruminating (Stanisławski, 2019). Negative emotion coping is also related to high negative activation consisting of fear, hostility and guilt. Positive emotion coping is related to low negative activation consisting of serenity and calmness (Stanisławski, 2019).

**The circumplex organization of coping styles**. The goal of the coping circumplex model looks to explain the relationship between coping categories instead of identifying mutually exclusive dimensions (Stanisławski, 2019). The model puts forward eight categories that fall across the two dimensions of problem coping and emotion coping with some being related to one dimension and others being related to both. These eight categories consist of: problem solving, efficiency, positive emotional coping, hedonic disengagement, problem avoidance, helplessness, negative emotional coping, and preoccupation with the problem. Problem solving falls under high problem coping and can be defined as the

> active cognitive and behavioral efforts to deal with the problem" and "consists of acknowledging various thoughts concerning the problem, undertaking efforts to

> understand the situation, predicting the course of the events, choosing the most appropriate solutions, planning to solve the problem and implementing this plan as well as taking consistent action to solve the problem" (Stanisławski, 2019, p. 8).

On the other hand, problem avoidance falls under low problem coping and can be defined as "the avoidance of thinking about the problem (e.g. by engaging in substitute activities), reducing efforts to solve the problem, postponing task, or giving up attempts to attain goal" (Stanisławski, 2019, p. 8). Positive emotional coping falls under high emotion coping and "involves being kind and understanding to oneself as one tries to solve a problem on one's own regardless of success and the use of cognitive transformations that enable the elicitation of positive emotions and calming down" (Stanisławski, 2019, p. 9). In contrast, negative emotional coping falls under low emotion coping and "include self-criticism when dealing with problem, focusing attention on the negative aspects of stressful situation (e.g. rumination), and on negative emotions (e.g. feelings of tension, pressure, or anger)" (Stanisławski, 2019, p. 9). The next two categories correlate with the problem and emotion coping dimensions with the same sign. Efficiency falls under both high problem and emotion coping and can be understood as a combination of positive emotional coping and problem solving (Stanisławski, 2019). Efficiency "involves the acknowledgement of thoughts and feelings associated with the stressor, using cognitive transformations that enable finding new avenues of solving the problem and the elicitation of positive emotions as well as positive expectations about the possibility of solving the problem" and "taking action to solve the problem" (Stanisławski, 2019, p. 10). On the opposite side is helplessness which falls under low problem and emotion coping and is a combination of negative emotional coping and problem avoidance (Stanisławski, 2019). Helplessness "includes not acknowledgement of the thoughts and feelings associated with the problem, using cognitive transformations, which elicit negative expectations as to the possibility of dealing with the problem as well as negative emotions" (Stanisławski, 2019, p. 10). The final two categories correlate with the problem and emotion coping dimensions with opposite signs. Preoccupation with the problem falls under high problem coping but low emotion coping and can be seen as a combination of problem solving and negative emotional coping. Preoccupation with the problem involves "a high tendency to take action to solve the problem and a low tendency to maintain…momentary well-being" (Stanisławski, 2019, p. 12). In contrast, hedonic disengagement falls under low problem coping and high emotion coping and is seen as a

combination of problem avoidance and positive emotional coping. Hedonic disengagement "involves avoidance of information on the problem and a strong tendency to maintain momentary well-being" (Stanisławski, 2019, p. 13). These categories that fall across the dimensions of problem and emotion coping help to create a clearer understanding of coping and looking at how different types can be adaptive or dysfunctional instead of simply putting it as problem-focused coping as adaptive and emotion-focused coping as maladaptive (Evans et al., Gholap et al., 2018; Gmitrowicz et al., 2012; Guerreiro et al., 2013; 2005; Karolina Jabłkowska et al., 2010).

The coping circumplex model will act as a lens to guide this study. There is a strong connection found between self-harm and coping. During the analysis of studies done on self-harm that look at coping, this conceptualization of coping will be used. If the studies do not utilize this framework, it will still be a guide for analysing them. Inspection of how the studies define coping, such as emotion-focused and problem-focused, will be done to see what type of coping is being described according to the coping circumplex model. In addition to the more specific way this framework will guide this study a more general utilization will also take place. Analysis of study findings will be done through a lens that looks at self-harm as a form of coping as a way to try to understand results while still exploring other explanations that studies may come up with for the findings.

## Literature Review

Self-harm is considered a significant public health problem, especially for adolescents, given the steep rise in death resulting from self-inflicted injuries during late adolescence (Cottrell, 2013; Mcmahon et al., 2013; Moran et al., 2012; Patton et al., 2009). Although self-harm can be seen in any age group, it is seen as a larger issue for adolescents (Plante, 2007). Theories around self-harm being a particular issue in adolescence look at the underlying biological changes that start at puberty (Dahl, 2004; Moran et al., 2012). These developmental changes in the brain might lead to an imbalance in emotional control and risk-taking behaviour that eventually is resolved as the prefrontal cortex fully matures (Dahl, 2008; Moran et al., 2012). However, this biological theory is limiting by focusing solely on adolescents. Brain development that starts with puberty goes into young adulthood until the individual is about 25 years old (Jetha & Segalowitz, 2012). Moran and colleagues (2012) looked at the natural history of self-harm through this transition period of late adolescence to young adulthood. Self-harm

during adulthood was shown to be independently associated with anxiety and depression in adolescence (Moran et al., 2012). This indicates that a relationship may exist in this transition period with respect to self-harm and therefore a need to look at emerging adulthood in addition to adolescence. In addition to looking at the differences and similarities between adults and adolescent populations with respect to self-harm, it is equally important to examine the following areas: self-harm and coping, the social aspects of self-harm, self-harming behaviours, and qualitative analyses on self-harm. Utilizing an integrative review to investigate the aforementioned research aspects will provide a more concise and holistic understanding of self-harm.

## Self-Harm and Coping

**Relationship between self-harm and coping mechanisms.** As a way to try to explain why one would engage in this type of behaviour, prior studies have examined how different coping mechanisms may give rise to self-harming behaviours (Evans et al., 2005; Gholap et al., 2018; Gmitrowicz et al., 2012; Guerreiro et al., 2013; Karolina Jabłkowska et al., 2010). A study by Gholap and colleagues (2018) looked at adult individuals who had been admitted to hospital for suicide attempts and found emotion-focused coping to be the predominant copying style among participants. Individuals who utilize emotion-focused coping strategies predominately concentrate on trying to relieve their current emotional state, such as anger, guilt, or tension. One may be referred to as using emotion-focused coping when they engage in some of the following behaviours: trying not to think about the problem also known as cognitive avoidance, making negative comparisons, refusing to take responsibility, resignation whereby they accept things without making any effort to change it, and withdrawal (Herman & Tetrick, 2009). In addition, Karolina Jabłkowska and colleagues (2010) studied adolescents hospitalized with a history of deliberate self-harm. The authors compared these self-harming adolescents against a control group that consisted of healthy volunteers. The results showed that self-harming adolescents adopted an emotion-oriented coping style when dealing with difficult situations significantly more than the control group. As mentioned, emotion-focused coping leads to behaviours used to alleviate emotional tension with self-harm sometimes being used to do this (Karolina Jabłkowska et al., 2010). This can subsequently lead to a sense of relief followed by calmness, grief, anxiety, and guilt showing the emotional relief to be short lived. The short-lived emotional relief is related to the adoption avoidance coping strategies. Avoidance coping strategies entail avoiding

thinking or engaging with the current problem and instead engaging in avoidance activities that fall under the categories of distracting or social diversion (Chapman & Dixon-Gordon, 2007; Karolina Jabłkowska et al., 2010). Individuals who utilize avoidant style coping often display poor emotional competences and difficulties in focusing on problems thereby hindering the individual's ability to solve the problems they're facing (Evans et al., 2005; Karolina Jabłkowska et al., 2010). Hence, it became concerning that patients who repeatedly self-harmed often adopted emotion-oriented and avoidance-oriented coping styles, which leads to a vicious cycle as neither strategy works towards resolving the initial problem (Evans et al., 2005; Karolina Jabłkowska et al., 2010). Furthermore, Karolina Jabłkowska and colleagues (2010) found that regular self-harming individuals used the above two ineffective coping styles more often than those who sporadically self-harmed, suggesting that regular self-harming behaviours woven into greater use of other ineffective coping. A systematic review conducted by Guerreiro and colleagues (2013) looked at the association between deliberate self-harm and coping among adolescents. The results of this systematic review showed strong support for the relationship between an emotion-focused coping style and avoidant coping strategies and adolescents who self-harm. Additionally, adolescents who self-harmed were less likely to show problem-focused coping. Problem-focused coping entails efforts to change the stressful situation and planning to resolve the problem (Herman & Tetrick, 2009; Karolina Jabłkowska et al., 2010; Schoenmakers et al., 2015). This means that adolescents who self-harm are less likely to utilize strategies to resolve the initial problem resulting in the possibility of the problem to repeatedly come up (Karolina Jabłkowska et al., 2010). Evans and colleagues (2005) found results similar to the previously listed studies by looking at individuals who self-harm, have thoughts of self-harm, and those who have never had thoughts or engaged in self-harm. This study also showed that those who have engaged in self-harm showed a tendency to use emotion-focused coping. Also similar to other research, individuals without a history of self-harming thoughts or behaviours showed higher levels of problem-focused coping strategies such as trying to sort things out or talk to someone (Evans et al., 2005). Gmitrowicz and colleagues (2012) looked at self-harming adolescent patients' stress coping styles and emotional intelligence. The authors found differences in coping styles utilized by individuals who self-harmed depending on if it was planned or impulsive. Those who showed planning were more likely to utilize task-oriented coping compared to those who acted impulsively. This shows that there may be more to the

relationship than simply those who self-harm use emotion-focused or avoidant coping instead of problem-focused coping. This potentially complex relationship has led some researchers to delve deeper into analysing the relationship between coping mechanisms and self-harm.

**Aspects of coping as mediators**. Evidence from the correlational studies shows a potential for coping mechanisms to play a role in an individual's decision to engage in self-harm but it is not clear what that role exactly is (Evans et al., 2005; Gholap et al., 2018; Gmitrowicz et al., 2012; Guerreiro et al., 2013; Karolina Jabłkowska et al., 2010). Some studies have gone beyond analyzing the correlation between coping mechanisms and self-harming behaviour to examine if aspects around coping mediate the effects between self-harm and mental health (Christian & Mccabe, 2011; McMahon et al., 2013; Mikolajczak et al., 2009). McMahon et al. (2013) analyzed whether coping style mediated the relationship between mental health factors and self-harm in adolescents. Emotion-oriented coping was found to be strongly associated with poorer mental health and self-harming thoughts while problem-oriented coping was related to better mental health. Also, emotion-oriented coping was found to have a mediating effect on the relationship between deliberate self-harm and mental health difficulties that consisted of depression, anxiety, and low self-esteem. Similarly, in a study done by Mikolajczak, Petrides, and Hurry (2009), adolescents were assessed for trait emotional intelligence, coping styles, and self-harming behaviours in order to determine if there is support for the theory that higher trait emotional intelligence would be related to a lower likelihood to self-harm and that this relationship would be mediated by coping style. Trait emotional intelligence is a concept that "aims to capture the individual differences in the extent to which people experience, attend to, identify, understand, regulate, and utilize their emotions and those of others" (p. 182 Mikolajczak et al., 2009) The results of the study support this theory in that the relationship between trait emotional intelligence and self-harm was partially mediated by the coping strategies chosen by the individual. A particularly powerful mediator was emotion coping which involves self-criticism, self-blame, and ruminating over the problem with the hope that will make it go away. These results suggest that self-harm may be utilized to decrease negative emotions that have been exacerbated by maladaptive emotional coping strategies such as self blame, rumination, and helplessness. While coping mechanisms in general may help mediate the relationship between mental health factors and self-harm there is also the possibility that more specific coping behaviours play a larger role. By analyzing specific coping behaviours there is

the potential to narrow in on specific issues within the coping mechanisms. Christian and Mccabe (2011) analyzed how maladaptive coping, such as self-blame, distancing, and self-isolation, may mediate the relationship between depressive symptoms and self-harming behaviour among psychology undergraduate students. The study found that self-isolation was strongly related to deliberate self-harm and that self-isolation fully mediated the relationship between depressive symptoms and deliberate self-harm. This implies that it is not the presence of depressive symptoms alone that affect one's likelihood of engaging in self-harm. Instead, it is whether the individual engages in self-isolation as a way to cope with the depressive symptoms that more likely influences the potential for the individual to engage in self-harm (Christian & Mccabe, 2011). The research on examining the mediating effects of coping help bring a deeper understanding to the complex issue of self-harm but still miss a key factor which is the notion of self-harm as a type of coping behaviour.

**Self-harm as a form of coping.** Some researchers have decided to look at the relationships between coping and self-harm by examining self-harm as a type of coping behaviour (Brown et al., 2007; Klonsky, 2007). Brown, Williams, and Collins (2007) examined if difficulties with coping and managing emotions remain in individuals who previously engaged in self-harming behaviours over a year ago. This study took self-report information from college students and divided them into three groups; those who have never self-harmed, those who had previously self-harmed, and those who had recently self-harmed. The authors found that there were few differences in coping strategies used between the three groups. However, both previously and recently self-harming groups showed greater amounts of negative emotions compared to the never self-harmed group. This indicates that even after engagement in self-harm stops, as shown with the previously self-harming group, individuals may still have struggles with managing emotions, which may be related to issues with finding effective ways to cope. Although the study by Brown, Williams, and Collins (2007) showed only few differences between individuals who do engage or had engaged in self-harm and those who never have engaged in self-harm in terms of coping strategies, other studies have still found connections between self-harm and coping. Klonsky (2007) conducted a review of empirical research on the functions of self-harm: affect-regulation, anti-dissociation, anti-suicide, interpersonal boundaries, interpersonal-influence, self-punishment, and sensation-seeking. This review included "self-reports of reasons for self-injuring, descriptions of the phenomenology of self-injury, and

laboratory studies examining the effects of self-injury proxies on affect and physiological arousal" (p. 226 Klonsky, 2007). The results of this review showed that in all 18 studies (Brain et al., 1998; Briere & Gil, 1998; Brown et al., 2002; Coid, 1993; Favazza & Conterio, 1989; Haines et al., 1995; Herpertz, 1995; Jones et al., 1979; Kemperman et al., 1997; Kumar et al., 2004; Laye - Gindhu & Schonert - Reichl, 2006; Nock & Prinstein, 2004; Osuch et al., 1999; Penn et al., 2003; Russ et al., 1992; Shearer, 1994; Wilkins & Coid, 1991) affect-regulation showed strong empirical support as a function of self-harm. This means acute negative affect precedes self-harm with self-harm being used to decrease the negative affect such as to stop bad feelings or reduce anxiety, terror, and despair (Brown et al., 2002; Klonsky, 2007; Shearer, 1994). Given that all of the studies showed strong support indicates that self-harm is most often performed in an attempt to alleviate negative affect. These results were shown in both the studies that used self-report and in the laboratory setting where the performance of self-harm proxies was followed by a reduction in negative affect and arousal. A study done by Kumar and colleagues (2004) that was in the review by Klonsky (2007) not only found the association between affect-regulation and self-harm but other relationships too. Affect modulation, desolation, influencing others, and punitive duality scores were found to correlate with one another indicating that they may measure a common underlying dimension around the motivation to self-harm. Additionally, self-reported depression showed a strong relationship to motivation to self-harm in general and the specific subscales of affect modulation, desolation, and punitive duality. This indicates the possibility of self-reported depression being related to not only self-harm being used to reduce negative affect but also the number and intensity of different motivations (Kumar et al., 2004). Other studies have made similar assertions about self-harm's role in reducing negative emotions and increasing positive (Chapman & Dixon-Gordon, 2007; Karolina Jabłkowska et al., 2010; Moran et al., 2012; Nixon et al., 2002; Rodham et al., 2004) while others have made more general statements of self-harm being understood as a coping strategy (Muehlenkamp & Gutierrez, 2004; Tørmoen et al., 2013). The notion of self-harm being used by individuals as a form of coping has gained a lot of support but also creates implications for health providers trying to help those who engage in self-harm.

**Implications for health providers.**

Even though there is an increase of literature around self-harm and a growing consensus of self-harm as a form of coping (Brown et al., 2007; Klonsky, 2007) it is still often

misunderstood by some clinical professions (Warm et al., 2002). There are cases where individuals are ignored when trying to get help (Warm et al., 2002) or even punished by health providers by having their wounds stitched without anaesthetic (Arnold, 1995; Warm et al., 2002). In addition to reports of problematic responses from health providers there is also controversy surrounding treatment (Arnold, 1995; Warm et al., 2002). If the notion of self-harm being utilized as an individual's way of coping were to be adopted as it is supported by research (Brown et al., 2007; Klonsky, 2007) treatment focused on eliminating self-harming behaviour could pose issues as it would potentially take away the individual's only way to cope (Arnold, 1995; Spandler, 1996; Warm et al., 2002). This could mean these approaches that work to constrain the individual's self-harming would be ineffectual at best and possibly detrimental (Arnold, 1995; Spandler, 1996; Warm et al., 2002). Instead of focusing on decreasing the self-harming behaviour there is some support for the creation of a therapeutic environment where the individual is able to discuss and work through their self-harm in their own way (Arnold, 1995; Bunclark & Crowe, 2000; Spandler, 1996; Warm et al., 2002). With this in mind it is important to look at what types of self-harming behaviours are being utilized as some range in lethality (Walsh, 2006) and therefore a harm reduction approach may be necessary.

**Self-Harming Behaviours**

While the definition of self-harm is broad, there are still common behaviours such as cutting, biting, hitting, recklessness, and bone breaking (Laye - Gindhu & Schonert - Reichl, 2006) that are commonly examined by researchers. Several studies have found similar findings where self-cutting and self-poisoning are the most common form of self-harming behaviours (Hawton et al., 2006; Hawton & Harris, 2008; Long et al., 2013; Patton et al., 1997; Rodham et al., 2004; Ross & Heath, 2002; Ystgaard et al., 2009). Laye - Gindhu and Schonert - Reichl (2006) tried to further explore self-harming behaviours in adolescents and they investigated what adolescents define as self-harming behaviours. The results showed that what adolescents reported were consistent with findings in other research; they consisted of cutting, biting, bone breaking, hitting, and recklessness (Laye - Gindhu & Schonert - Reichl, 2006; Patton et al., 1997; Rodham et al., 2004; Ross & Heath, 2002). Laye - Gindhu and Schonert - Reichl (2006) also looked at the nature of these common self-harming behaviours and found some gender differences. For females, cutting-type behaviours were reported to be the most common while for males it was ranked second. The most common self-harming behaviour to engage in among boys

were hitting, punching, and biting themselves. Also, females were the only ones to report disordered eating behaviours and ingesting of pills as self-harm behaviours. Additionally, there were also reporting of behaviours that were not common in previous research such as disordered eating behaviour and non-suicidal pill use (Laye - Gindhu & Schonert - Reichl, 2006). These additional reported self-harming behaviours highlight the need to explore self-harm from each individual's perspective and not imposing one's own definition and list of behaviours onto the participants. Given this need to try to understand self-harm from the individual's point of view it is important to synthesize qualitative research on this topic to delve in a better understanding regarding self-harming behavioural patterns.

## Self-Harm and Qualitative Research

Baker and Fortune (2008) expressed the pressing need to get a more in-depth understanding of individuals who suffer from maladaptive coping, such as self-harming, by interviewing them, in addition to quantifying the patterns. In particular, the authors examined why individuals engaged in self-harm and browsed suicide websites by interviewing the users of these sites. It was found that individuals used self-harm and suicide websites as a form of coping to and avoid engaging self-harming behaviour which had been their previous method of coping. These findings support the notion of self-harm being used as a way to cope and that other coping strategies can be utilized to help a person stop their self-harming behaviours.

## Social Aspects of Self-Harm

**Paradox in the social of self-harm.** The concept of self-harm has long been thought of as a private act. This individualistic framing has created the "paradox in the social" (p. 158 Stegalls et al., 2020) of self-harm. The predominant model of self-harm being framed as individualistic and intra-psychic sets the stage for self-harm that has communicative aspects as being inauthentic and 'attention seeking' (Steggals et al., 2020). This notion creates stigma around visible self-harm and results in individuals trying to navigate both revealing and concealing their self-harm (Steggals et al., 2020). This stigma stems from the connotations around 'attention-seeking' (Steggals et al., 2020) as a form of manipulation to get the benefits of playing the 'sick role' (Parsons, 1951). The notion of self-harm as a personal issue receives ample evidence to support it (Smith et al., 1998; Solomon & Farrand, 1996) but it is not the complete picture.

**Communicative aspect of self-harm.** There have been multiple accounts that describe the communicative nature of self-harm such as; a "form of violent communication" (p. 105 Grocutt, 2009), a "system of signs marking statements about the self" (p. 4 Gardner, 2001), a "language of blood and pain" (p. 58 Hewitt, 1997), a way of voicing "things that cannot be said" (p. 45 Pembroke, 1996), and a "desperate bodily speech act" (p. 160 Steggals et al., 2020). There is some support for the idea of the communicative aspect of self-harm being a form of self-communication, as a type of testimony that honours their experiences (Babiker & Arnold, 1997). Although self-communication might be part of the communicative dimension, Callero (2009) points out that the personal sentiments being displayed in the behaviour are not real until shown to others as a way of testing the legitimacy of this symbolic communication. There have been multiple studies that have provided evidence for the communicative dimension not solely being self-communication (Brown et al., 2002; Rodham et al., 2004; Turner et al., 2012). A study by Hawton et al. (2006) showed evidence for the possibility of self-harm being both interactional and intra-psychic by looking at core motives behind self-harming behaviour. The intrapersonal motives included statement such as "I wanted to get relief from a terrible state of mind" (p.53 Hawton et al., 2006). The interpersonal motives included the statements "I wanted someone to know how desperate I was feeling" (p.53 Hawton et al., 2006), "I wanted to find out whether someone really loved me" (p.53 Hawton et al., 2006), "I wanted to get some attention" (p.53 Hawton et al., 2006), "I wanted to frighten someone" (p.53 Hawton et al., 2006), and "I wanted to get my own back on someone" (p.53 Hawton et al., 2006).The study found that 72.8% identified intra-personal motives but a significant minority reported motives that were more interpersonal in nature with each motive ranging from 14.3%-40.7% of respondents. Additionally, in a study done by Spandler (1996) several core assertions were made by the participants that were interpersonal and interactional in nature. It is possible that instead of 'attention-seeking' what the individual engaging in self-harm is trying to get through the communicative dimension is recognition (Crouch & Wright, 2004; Frank, 1991; Hewitt, 1997; Steggals, 2015). It is the desire for recognition coupled with the fear of stigma that makes the communicative dimension of self-harm complex and seem like a paradox. If only invisible self-harm is legitimate while at the same time the only way to test the legitimacy of self-harm is by communicating it to others one must do a mix of concealing and revealing. This results in them finding ways to enable the communication without it seeming like a deliberate act and therefore

'attention-seeking' (Steggals et al., 2020). Arthur Frank's (1991) theory of the 'communicative body' along with Jane Kilby's (2001) concept of the "failed promise of language" (p. 166 Steggals et al., 2020) give further support to the idea of communicative self-harm. When words fail, communication finds other means through the body and what Hewitt (1997) describes as a "language of blood and pain" (p. 58 Hewitt, 1997); as a way of showing without words. Other evidence of the communicative aspect of self-harm is the presence of self-harm websites and other forms of social media (Mars et al., 2015; Steggals et al., 2020). In a study done by Baker and Fortune (2008) results showed that self-harm and suicide websites can be used for empathic understanding, community, and coping. These results show how communicating between those who self-harm can have healthy outcomes but this is not always the case. Similar to the contagion effect of suicide[1] there is concern for a contagion effect with respect to self-harm (Steggals et al., 2020). There has been evidence that has shown that those with a history of self-harm are more likely to have peer who also self-harm (McMahon et al., 2014; McMahon et al., 2010). In some cases, self-harm is described as a way of bringing friends closer together and used to get affection from the other friend that also self-harms (Steggals et al., 2020).

**Personal and relational life.** In addition to all of the evidence for the communicative dimension of self-harm there are also other aspects to the social in self-harm. Even though self-harm is for the most part done in private it is impossible to separate the personal life from the relational life as everything one does occurs within and has an effect on the relationships they have with people (Steggals et al., 2020). A study on psychiatric inpatients done by Stewart et al., 2012 found a common precursor for self-harm was an attempted absconding event. The precursor illustrates that a social event then effected the individual's engagement in self-harm. Additionally, the study found a self-harming sequence that included lack of cooperation whereby the individual refused to see workers in the psychiatric facility before and after the self-harming incident. Similar results have been shown in other studies that found patients to be critical of their treatment and hold negative attitude towards their caregivers (Mangnall & Yurkovich, 2008; Shaw, 2002; Warm et al., 2002). This can be in part due to hospital staff viewing self-harmers as having less entitlement to care compared to other patients (Hopkins, 2002; Mangnall

[1] Suicide contagion refers to exposure to suicide as a risk factor for future suicide. Research has looked at the effects of both celebrities and classmates that die by suicide as forms of exposure to suicide (Bohanna, 2013). Swanson & Colman (2013) found exposure to suicide to be a risk for future suicide independent of previous depression or anxiety, access to social support, and relationship with the victim.

& Yurkovich, 2008). This view of self-harm as being a form of blackmail instead of a desire to relieve distress can result in disengagement from caregivers (Mangnall & Yurkovich, 2008; Shaw, 2002). This further shows how relationships have an effect on self-harming behaviour and also are affected by it. Going further into the relational aspects of life related to self-harm some studies have looked at the role of childhood trauma (Gratz, 2003; Gratz, 2006; Klonsky et al., 2003; Long et al., 2013; Mangnall & Yurkovich, 2008; Turell & Armsworth, 2003; Walsh & Rosen, 1988). There is ample evidence to support childhood trauma as a predisposing factor for self-harm with the presence of childhood trauma precipitating self-harm in both childhood and later life (Gratz, 2006; Klonsky et al., 2003; Mangnall & Yurkovich, 2008; Turell & Armsworth, 2003). Walsh and Rosen (1988) put forward a theory to explain the relationship between childhood trauma and self-harm. It is possible that negative early life experiences, such as childhood trauma, can result in a failure in achieving object love and an inability to trust others. This would then impede the individual's capacity to develop trusting and secure interpersonal relationships resulting in a cycle of self-harm being perpetuated (Walsh and Rosen, 1988). The relationship between victimization and self-harm does not stop at childhood trauma. A study conducted by Boyle (2003) on victims of domestic violence presenting themselves at hospitals and looked at the potential relationship to self-harm. It was found that those who engaged in self-harm were 75 times more likely to report physical or verbal domestic abuse. Although this shows a strong relationship between the two it is not clear exactly what the relationship is (Boyle, 2003). In addition to these specific aspects of relational life it is also possible that a more general sense of social connectedness impacts one's likelihood to self-harm. Macrynikola, Miranda, and Soffer (2018) conducted a study with undergraduate and graduate students from a public commuter college to analyze the relationship between self-injurious thoughts and behaviours, social connectedness, and stressful life events. The results indicated that lower levels of social connectedness and more stressful life events to be associated with engaging in self-injurious thoughts and behaviours. However, social connectedness did not function as a buffer between stressful life events and self-injurious thoughts and behaviours. These studies show that the personal and relational life cannot be separated within the individual and that what happens in childhood goes on to impact later life including adulthood. With this in mind it is important to study self-harm by looking at adult populations.

## Self-Harm in Adult Populations

A shortcoming of many existing studies is that the focus population is adolescents and less literature exists for adult populations. Additionally, several studies have dealt solely with hospital populations, but as Christian and Mccabe (2011) and McMahon et al. (2013) have demonstrated through their studies, deliberate self-harm is present in everyday classrooms and is not just confined to that of hospital populations. However, there is a growing amount of literature that shows self-harm also occurs in adulthood (Hjelmeland and Grøholt, 2005; Moran et al., 2012; Plante, 2007). In a study conducted at Ivy League colleges in the United States, 17% of students reported purposely injuring themselves (Plante, 2007). This finding is particularly worrisome as treatments for maladaptive coping, especially self-harming, receive far less attention in adult populations in comparison to adolescence.

**Adult populations versus adolescent populations**. A study by Hjelmeland and Grøholt (2005) looked at the similarities and differences between adolescent and adult self-harm patients by comparing interviews from individuals under 20 years old to those older than 20. The results found that, although there are very different rates between adults and adolescents when it comes to self-harm and suicide, the circumstances that give rise to these behaviours are quite similar. There were no differences found in terms of the level of suicidal intent, the level of depression, hopelessness, and low self-esteem. However, adults were more likely to have different intentions, psychiatric problems, and substance abuse issues when compare to the adolescent group. Adolescents were also found to have higher ratings of impulsivity. Although both adolescents and adults showed similar rates in terms of self-esteem, low self-esteem in adults showed an independent effect whereas for adolescents low-esteem did not show an effect independent of depression, hopelessness, or the number of problems. Finally, adults reported that they experience higher levels of problems that might have precipitated the self-harming behaviour compared to adolescents. The problems included issues with partners, parents, children, feelings of loneliness, social relationships, rejection by a lover, physical illness or disability, mental illness and psychiatric symptoms, unemployment, and addiction. This indicates that adolescents might have a lower threshold when it comes to self-harm and suicide given that they experience less problems that might precipitate self-harming than adults on average but still are compelled to engage in self-harming or suicide behaviours. Trying to understand adolescent versus adult self-harm in a different light Moran and colleagues (2012) looked at the natural

progression of self-harm from adolescence to young adulthood. As found in previous research there was a drop off in rates from adolescence into adulthood. Additionally, during adolescence cutting and burning were found to be the most common methods of self-harm while in young adulthood no one method predominated (Moran et al., 2012). Given that both of these studies that looked at the differences between adolescent and adult self-harm found a larger prevalence in adolescence it makes sense that there is a desire to have a more concise conceptualization of self-harm during adolescence through the use of an integrative review.

**Integrative Review on Self-Harm**

With more research attention given to adolescents, Wilkinson (2011) conducted an integrative review on adolescent self-harm looking at the following factors: demographics; risk factors; motivators; techniques of self-injurious behaviour; social contagion; assessment; treatment; and prevention. In terms of demographics, the findings showed females having a greater incidence of self-harm, as do Caucasians. The most prevalent risk factor identified was depression followed by borderline personality disorder, anxiety, eating disorders, posttraumatic stress disorder. Common motivators for engaging in self-harm were using it as a coping mechanism, self-punishment, attention seeking, sensation seeking, and the sight of blood being used to restore a sense of authenticity. The techniques identified in studies can vary greatly but cutting, scratching, skin-carving, burning, rubbing, and hitting are predominant techniques across studies. With the increase of media attention on the subject and internet usage by adolescents there have been findings that show this increase can have positive outcomes through informal support as well as negative outcomes by becoming an additional motivator. In terms of assessment, the most common method of discovery for self-harming behaviour was when a peer confided in a school counsellor followed by the classroom teacher or coach identifying the behaviour, or the student coming forward themselves. Multiple treatment approaches exist for dealing with self-harm; one commonality is helping the individual find healthier substitute behaviours for releasing negative emotions. While Wilkinson's (2011) review provided a general understanding of self-harm among adolescents, self-harm does occur among adults and it is important to conduct an integrative review to provide a more detailed understanding of self-harm in the adult populations. This is important in order to determine if there are qualitative differences between self-harm in these two populations. Given that both similarities and differences have been found in the studies that compared the two populations (Hjelmeland &

Grøholt, 2005; Moran et al., 2012) it is impractical to generalize the findings of this integrative review to adult populations and therefore a separate systematic review is needed for the adult population.

## Significance of the Project

Researching the topic of non-suicidal self-harm is important in order to get a more holistic and clearer understanding of the issue. If self-harm is only understood in relation to suicide there can be limits to help provided to individuals dealing with non-suicidal self-harm. With a conceptualization of self-harm as being separate from suicide there is the possibility of more tailored treatments and better identification measurements created to help this population. Added to this is the fact that many researchers use different terminology and definitions for this phenomenon, resulting in a lack of clarity with this topic. This is why it would be beneficial to have an integrative review done on self-harm to bring a clearer understanding to self-harm. An integrative review on self-harm has been conducted by Wilkinson (2011), which looked at adolescent populations. It would be helpful to create an integrative review looking at adult populations to be able to determine if these populations have any similarities or differences.

## Research Questions

What are the common themes among adults who engage in self-harm with reference to: demographics; risk factors; motivators; techniques of self-injurious behaviour; social contagion; assessment; treatment; and prevention?

To what extent are there qualitative differences between adolescents and adults that engage in self-harm?

To what extent does the rise in technology use have an impact on self-harm?

# CHAPTER 2

# METHODS

Although research on self-harm in adult populations is accumulating, there is a lack of an integrative review done to create a clearer understanding of self-harm. As stated earlier, this is important as there are issues around different conceptualizations of self-harm depending on the study. The purpose of this study is to conduct an integrative review of studies done about self-harm in adult populations to discover common themes from these studies following the steps for an integrative review presented by Whittemore and Knafl (2005). In addition, this study examined if there are qualitative differences between adult self-harm and adolescent self-harm by comparing the results of the integrative review with the integrative review on adolescent self-harm conducted by Wilkinson (2011).

## Assumptions

The integrative review operates with two methodological assumptions. First, it is assumed that the existing literature that is collected during the review will be sufficient in providing a summary of data that is relevant to the research topic and therefore facilitate a more holistic understanding of self-harm for an adult population. Second, the findings of the integrative are relevant to current conceptualizations of self-harm and provide awareness on how to prevent and treat self-harm.

## Literature Search

### Search Methods

In order to be able to compare the results of this integrative review to the study conducted by Wilkinson (2011) similar protocol was followed. Combined with the desire to be as comparable to Wilkinson's (2011) study and wanting to keep the study recent both an updated review on adolescent self-harm was done and combined with Wilkinson's results (2011). The present integrative review on adult self-harm encompassed the time span of both the adolescent reviews combined.

**Databases.** The databases that were used to conduct the search consisted of PsychInfo, Ebscohost, MedLine, PubMed, Ovid, and CINAHL. These databases were selected because they are the same ones used by Wilkinson (2011).

**Search Terms.** The key words that were used to conduct the search for the updated adolescent review are the same as Wilkson's (2011) study and consisted of: adolescent; mental health; cutting; deliberate self-harm (DSH); self-injury/injurious behaviour (SIB); self-mutilation (SM); and self-harm behaviour. The key words for the adult integrative review were the same but adolescent changed to adult.

**Supplemental Search Methods.** The papers that were included must be peer-reviewed and consist of theory and review papers or research studies. For the adolescent update, the articles fell in between the dates of 2011 and 2020 to ensure the information functioned as an update. For the adult integrative review, the articles fell between the dates of 2001 and 2020 to ensure that the results were most comparable to that of Wilkinson's (2011).

## Inclusion/Exclusion Criteria

After the initial gathering of studies, I read the abstracts with the following exclusion and inclusion criteria to see if the study qualified for the review. With the focus of the study consisting of adults in community settings, studies whose populations fall under 18 years of age or consist of developmentally delayed individuals or psychiatric patients were excluded from the review. For the update of the adolescent review, the population exclusion criteria are the same except for the age, where instead older age groups were excluded. In addition to population exclusion criteria this study looked at deliberate self-harm, so additional exclusion criteria consisted of: suicide; alcohol or drug abuse; and risky sexual behaviour, as these terms do not match the definition of deliberate self-harm being utilized in this study. If a study looked at both deliberate self-harm and any of these other categories a more thorough examination was conducted to see if the information obtained by the study about self-harm was relevant to the review. Additionally, if a study looked at both adolescent and adult populations, such as a longitudinal study, a more thorough examination was conducted to see which review the study belonged to and the study should have the results broken up between the two reviews. The inclusion criteria consisted of the studying having a population of 18 years or older for the adult review and the opposite for the adolescent review and having a definition of deliberate self-harm that closely aligned with the definition used in this study.

## Evaluation of Data

After the articles that appeared in the search were evaluated against the exclusion and inclusion criteria, an examination was conducted to determine the amount of studies left over (if there are too many or not enough) to see if adjustments needed to be made to either narrow the search or increase the search. Additionally, each article was examined for quality.

### Quality of Research

The studies were examined using the Critical Appraisal Skills Program (CASP) with the checklist used for the correct type of study being appraised (http://casp-uk.net/casp-tools-checklist/) (Toronto & Remington, 2020). For cross-sectional studies the AXIS tool was used to appraise the quality (Downes et al., 2016). For the theoretical articles, appraisals were done using the six-step procedure put forward by Walker and Avant (2019) that looks at: the origins; meaning; logical adequacy; usefulness; generalizability; and testability. After all of the articles were appraised a decision was made as to whether or not to include low-quality studies looking at the diversity of the sample and number of studies (Toronto & Remington, 2020).

### Data Display

Once the search had been completed and an adequate number of studies was found, a matrix was created with the headings: authors; title; year; method; sample; quality rating; and results (Toronto & Remington, 2020).

### Data Reduction

The data was then reduced by breaking down the results into the categories presented in Wilkinson (2011). These categories consisted of: demographics; risk factors; motivators; techniques of self-injurious behaviour; social contagion; assessment; treatment; and prevention with the addition of prevalence.

### Data Comparison

A thematic analysis was conducted using the steps outlined by Braun and Clarke (2006). These steps are: familiarizing with data; generating initial codes; searching for themes; reviewing themes; defining and naming themes; and producing the report. The results of the studies were looked at for themes that appear in each of the respective categories. The themes from individual

studies were reviewed to see if there are commonalities between studies, collapsing and broadening themes that show a lack of support across studies.

**Identification of Patterns, Themes, Variations, and Relationships**

Then, in the defining stage, the themes were looked at for the presence of subthemes and the overall story the theme tells (Braun & Clarke, 2006) it is at this step that the synthesis of the data was conducted (Toronto & Remington, 2020). After the analysis had been completed, a comparison took place between the results of the review done of adult self-harm and the results of the study by Wilkinson (2011) along with the update on adolescent self-harm that was conducted in order to analyze if there are qualitative differences between adolescent and adult self-harm.

In addition to the analysis being conducted to compare the findings from this study with that of Wilkinson (2011) to analyze the differences and/or similarities between adolescent self-harm and adult self-harm another area of analysis were conducted. The area was looking at what is known about self-harm and the increasing presence of social media. This analysis took place on a separate matrix to keep the two purposes of the study clear. The results were presented in a different section from the comparison between adult and adolescent self-harm as these results were trying to answer other questions about self-harm.

As this study data came from already published work and no participants were included in the conducting of this research, there was no need for ethics approval.

# CHAPTER 3

# RESULTS

## Overview

A total of sixty seven studies met the inclusion criteria and were included in the analysis for the adult review. For the update to the adolescent review a total of forty-one studies met the criteria to be included in the analysis and will be combined with the results of the review done by Wilkinson (2011) that consisted of thirty-six studies resulting in seventy-seven studies in total. All of the studies the met inclusion criteria also had adequate quality scores; therefore, no studies were removed for lack of quality. The results are organized from a developmental perspective, starting with the update to the adolescent review combined with the review done by Wilkinson (2011). Second, the findings from the adult review will be presented as the focus of this study. Third, the similarities and differences between the adult and adolescent reviews from each thematic category will presented. Fourth, the results on the additional review on how the increase in technology has affected self-harm will presented.

## Adolescent Review

Of the forty-one studies included in analysis for the update to the adolescent review a wide range of prevalence rates were reported (see Figure 1). As no prevalence rates were listed in the Wilkinson (2011), these results could not be combined. In terms of lifetime self-harm prevalence, a range of 7.82% - 41.9% was found. All the lifetime prevalence rates came from studies that utilized school samples except for two that came from the general community with none coming from online samples. The average prevalence for lifetime self-harm was 22.56%. Additionally, the only prevalence rate under 10% came from a general community sample (Perlman et al., 2018). In terms of past year prevalence, the range was from 3.6% - 45.7%. Once again, the majority of the studies came from school samples with three studies utilizing samples from the general community.) The mean prevalence for past year self-harm was 20.5%.

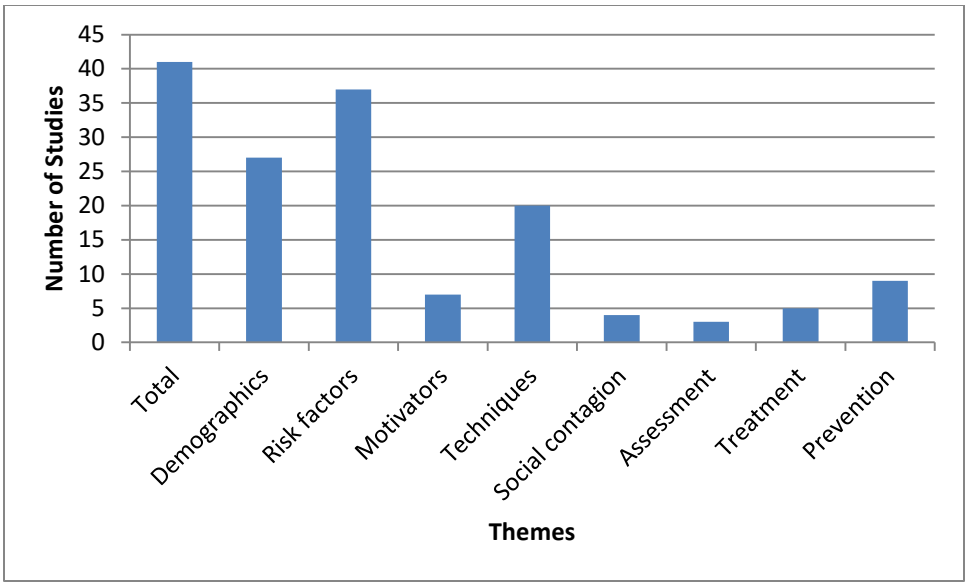


Figure 1 - Studies in Adolescent Review update

## Demographics

Across the studies for the update to the adolescent review there were differences found across demographic groups that build on the results found by Wilkinson (2011). These demographic groups consist of gender, age, sexual orientation, race, socio-economic status, education, and other vulnerable groups (see Figure 2).

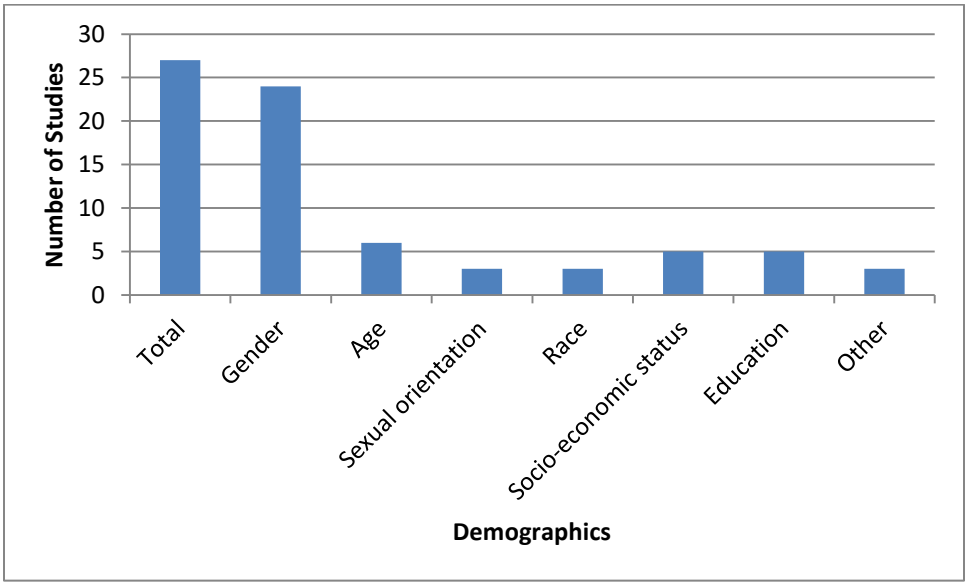


Figure 2 - Studies that found results on demographics

**Gender**. In the review conducted by Wilkinson (2011) a large portion of the studies found girls to have a greater incidence of self-harm. Although several studies in the update

review found no gender differences (Cassels et al., 2018; Çimen et al., 2017; Claes et al., 2015; Jutengren et al., 2011; Liu et al., 2017; Poon et al., 2019; Wan et al., 2015) or a higher incidence in boys (Gratz et al., 2012; Li et al., 2019; Wang et al., 2020), the majority found a higher incidence in girls (Albores-Gallo et al., 2014; Cerutti et al., 2011; Gandhi et al., 2016; Hamada et al., 2018; Jantzer et al., 2015; Luyckx et al., 2015; Monto et al., 2018; Shek & Yu, 2012; Somma et al., 2017; Voon et al., 2014; Xavier et al., 2018; Xavier et al., 2017; Xavier et al., 2016) continuing the findings brought forth by Wilkinson (2011). In addition to the explanation provided by Wilkinson (2011) for these gender differences stating that boys may be less forthcoming with information about self-harm it was also shown that girls report higher levels of risk factors associated with self-harm (Xavier et al., 2018; Xavier et al., 2016). In addition to girls being more likely to self-harm, another particularly vulnerable group also emerged consisting of transgender individuals who were assigned female at birth (Taliaferro et al., 2019).

**Age.** The Wilkinson (2011) did not report any differences in age groups for prevalence of self-harm. Of the studies in this update review, a mixed picture appears. While some studies found no differences across age groups (Çimen et al., 2017; Claes et al., 2015) others found that older adolescents had higher prevalence (Liu et al., 2018; Liu et al., 2017) while others found middle adolescents to exhibit more self-harm (Liu et al., 2018; Xavier et al., 2016) and one study found younger adolescents to report more self-harming behaviour (Monto et al., 2018).

**Sexual orientation.** No findings were reported in the review by Wilkinson (2011) in terms of differences in sexual orientation. However, several studies in the update found that sexual minority individuals showed a higher prevalence of self-harm (DeCamp & Bakken, 2016; Li et al., 2019; Monto et al., 2018). For those questioning their sexual orientation it is unclear as one study found these individuals to have a higher prevalence (Monto et al., 2018) while another found the rates similar to heterosexual individuals (Li et al., 2019). In terms of particularly vulnerable groups, DeCamp and Bakken (2016) found that sexual minority females had the highest rate of self-harm followed by sexual minority males, heterosexual females, and finally heterosexual males.

**Race**. In the review by Wilkinson (2011) White individuals were shown to have the highest prevalence of self-harm. In the update the results are more mixed with one studying finding no racial differences (Taliaferro et al., 2019), one finding White, Native American, and Hispanic individuals to have higher rates (Monto et al., 2018), and one finding Black individuals

to report the most self-harm (Gratz et al., 2012). Looking at particularly vulnerable groups, Gratz and colleagues (2012) found that Black boys in middle school and White girls in high school show the highest levels of self-harm. Additionally, Monto and colleagues (2018) found Black and Asian individuals to have the lowest rates of self-harm.

**Socio-economic status**. In terms of socio-economic status Wilkinson (2011) reported no findings about this demographic group and one study in the update found no relationship to socio-economic status and self-harm (Liu et al., 2017). However, several studies in the update found that those with lower socio-economic status reported higher rates of self-harm (Gratz et al., 2012; Li et al., 2019; Liu et al., 2018; Taliaferro et al., 2019).

**Education**. The majority of studies that looked at differences between education level and self-harm found that high school students had higher rates of self-harm (Gratz et al., 2012; Jantzer et al., 2015; Xavier et al., 2016). Although, the Wilkinson (2011) reported no differences in level of education and other studies showed no differences (Çimen et al., 2017) or that middle school students had higher rates (Li et al., 2019).

**Other risk groups**. In addition to the demographic groups stated some studies found differences in rates of self-harm in groups that did not fit in any of the above groupings. Wang and colleagues (2020) found that only children reported more self-harm. Adolescents who had divorced parents then later remarried showed higher rates of self-harm when compared to those whose parents were still married (Shek & Yu, 2012). Those living in rural communities and whose parents' education was less than high school also appeared to engage in self-harm more (Li et al., 2019).

### Risk Factors

The risk factors found by the review done by Wilkinson (2011) consisted of issues with mental health and illness. Although many studies in the update found mental illness to be risk factors for self-harm, the same number was found for interpersonal risk factors. Other risk factors found in the update consisted of trauma, emotions, emotion regulation difficulties, risky behaviours, personality and identity, self-esteem, past self-harm, and other risk factors that did not fit into a category (see Figure 3).

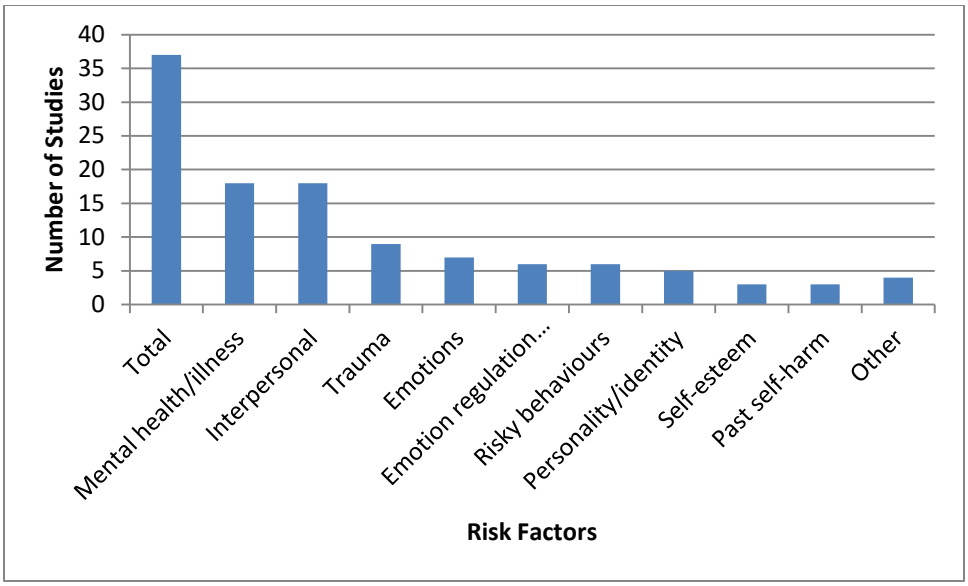


**Figure 3 - Studies that found risk factors**

**Mental health and illness.** Even though interpersonal risk factors were cited in the same number of studies as mental health and illness in the update given that Wilkinson (2011) only reported mental health and illness risk, mental health and illness will arguably remain the leading risk factor. A total of eighteen studies reported issues with mental health and illness as risk factors of self-harm (Albores-Gallo et al., 2014; Cassels et al., 2018; Cerutti et al., 2011; Çimen et al., 2017; Claes et al., 2015; DeCamp & Bakken, 2016; Glenn et al., 2016; Gratz et al., 2012; Hamada et al., 2018; Hankin & Abela, 2011; Liu et al., 2018; Luyckx et al., 2015; Madjar et al., 2019; Somma et al., 2017; Taliaferro et al., 2019; Xavier et al., 2018; Xavier et al., 2017; Xavier et al., 2016). In addition to general issues around mental health and illness (Cassels et al., 2018; Hamada et al., 2018; Liu et al., 2018; Taliaferro et al., 2019) some studies found specific psychological disorders to be risk factors for self-harm. In line with the findings from Wilkinson (2011) depression was the most common psychological disorder to be a risk factor for self-harm (Albores-Gallo et al., 2014; Çimen et al., 2017; Claes et al., 2015; DeCamp & Bakken, 2016; Glenn et al., 2016; Hankin & Abela, 2011; Luyckx et al., 2015; Madjar et al., 2019; Taliaferro et al., 2019; Xavier et al., 2018; Xavier et al., 2017; Xavier et al., 2016). Other disorders—borderline personality disorder (Cerutti et al., 2011; Gratz et al., 2012; Somma et al., 2017), anxiety (Çimen et al., 2017; Luyckx et al., 2015), disordered eating (DeCamp & Bakken, 2016), and posttraumatic-stress disorder (Çimen et al., 2017)—were found to be associated with self-harm as was also shown in the Wilkinson (2011) review. Although disordered eating was found

to be a risk factor this was only the case with fasting for heterosexual boys and girls and purging for heterosexual girls (DeCamp & Bakken, 2016). Additional mental health and illness risk factors found in the update were destructive behaviour disorders (Cerutti et al., 2011; Çimen et al., 2017) and dissociation (Cerutti et al., 2011; Xavier et al., 2018). Looking at specific groups, girls appeared to experience more dissociation and depression and the relationship between depression and self-harm was stronger for them (Xavier et al., 2018). Also, borderline personality disorder helped explain higher rates of self-harm in White students but not Black boys in middle school (Gratz et al., 2012).

**Interpersonal.** Interpersonal risk factors are the second most common being found in eighteen different studies (Cassels et al., 2018; Claes et al., 2015; Çimen et al., 2017; DeCamp & Bakken, 2016; Gandhi et al., 2016; Hamada et al., 2018; Hankin & Abela, 2011; Jantzer et al., 2015; Jutengren et al., 2011; Li et al., 2019; Monto et al., 2018; Shek & Yu, 2012; Taliaferro et al., 2019; Victor & Klonsky, 2018; Xavier et al., 2018; Xavier et al., 2016; Young et al., 2014; Zetterqvist, 2017) but not appearing in the Wilkinson (2011) review. Different interpersonal risk factors are found to be associated with family (Cassels et al., 2018; Gandhi et al., 2016; Hankin & Abela, 2011; Jutengren et al., 2011; Shek & Yu, 2012), peers and friends (Cassels et al., 2018; Çimen et al., 2017; DeCamp & Bakken, 2016; Gandhi et al., 2016; Jutengren et al., 2011; Li et al., 2019; Monto et al., 2018; Victor & Klonsky, 2018; Xavier et al., 2018; Xavier et al., 2016), bullying (Claes et al., 2015; DeCamp & Bakken, 2016; Hamada et al., 2018; Jantzer et al., 2015; Li et al., 2019; Monto et al., 2018), and other interpersonal issues (Çimen et al., 2017; DeCamp & Bakken, 2016; Hamada et al., 2018; Young et al., 2014) in addition to general lack of social support (Hankin & Abela, 2011). Bullying is a fairly prevalent risk factor and includes being a victim of bullying (Claes et al., 2015; DeCamp & Bakken, 2016; Hamada et al., 2018; Jantzer et al., 2015; Li et al., 2019; Monto et al., 2018) and perpetrator (Hamada et al., 2018). Specifically cyberbullying (Jantzer et al., 2015; Monto et al., 2018) and social bullying (Jantzer et al., 2015) appear to be particularly large risk factors. DeCamp and Bakken (2016) found that being victims of bullying to only be a strong predictor of self-harm in girls and heterosexual boys. Risk factors associated with peers and friends included daily peer hassles (Xavier et al., 2018; Xavier et al., 2016), poor peer relationships (Cassels et al., 2018), peer alienation (Gandhi et al., 2016), peer victimization (Jutengren et al., 2011), fighting (Çimen et al., 2017; DeCamp & Bakken, 2016; Li et al., 2019; Monto et al., 2018), and having a friend that self-harms (Victor & Klonsky, 2018).

Looking at specific girls tend to report experiencing more daily peer hassles (Xavier et al., 2018), but the relationship between daily peer hassles and self-harm appears to be stronger for boys (Xavier et al., 2018). Also, fighting may only be a significant risk factor for heterosexual boys (DeCamp & Bakken, 2016). Issues with family includes impaired family functioning (Cassels et al., 2018), maternal alienation (Gandhi et al., 2016), harsh parenting (Jutengren et al., 2011), maternal depression (Hankin & Abela, 2011), and parental divorce (Shek & Yu, 2012). Harsh parenting appears to be a particularly strong risk factor for girls (Jutengren et al., 2011). Other interpersonal risk factors include running away (Taliaferro et al., 2019), attending bars or clubs (Çimen et al., 2017), lack of perceived school safety (Hamada et al., 2018), sexual activity (DeCamp & Bakken, 2016), and reporting an 'alternative' identity (Young et al., 2014). With respect to sexual activity this was only shown to be a risk factor for sexual minority adolescents (DeCamp & Bakken, 2016).

**Trauma.** Different forms of trauma experiences were found to be risk factors for self-harm across studies (Cassels et al., 2018; Cerutti et al., 2011; DeCamp & Bakken, 2016; Li et al., 2019; Monto et al., 2018; Voon et al., 2014; Wan et al., 2015; Wang et al., 2020; Zetterqvist, 2017). Adverse experiences were found to be risk factors for self-harm (Cassels et al., 2018; Cerutti et al., 2011; Li et al., 2019; Voon et al., 2014; Zetterqvist, 2017) as well as childhood maltreatment and abuse (Cerutti et al., 2011; DeCamp & Bakken, 2016; Monto et al., 2018; Wan et al., 2015; Wang et al., 2020). Specific forms of abuse noted in studies included sexual (Cerutti et al., 2011; DeCamp & Bakken, 2016; Monto et al., 2018; Wan et al., 2015) and psychological (Cerutti et al., 2011). Even when exposure to abuse had no perceived harm the risk of self-harm was still present (Wan et al., 2015). Additionally, individuals who engaged in self-harm to the severity of meeting diagnostic criteria for non-suicidal self-injury disorder (NSSI-D) experienced more trauma symptoms (Zetterqvist, 2017).

**Emotions**. Issues regarding emotions were found to be risk factors for self-harm in several studies (Albores-Gallo et al., 2014; Chen & Chun, 2019; DeCamp & Bakken, 2016; Monto et al., 2018; Tang et al., 2013; Xavier et al., 2016; Zamorano & Rojas, 2017). In addition to general negative emotions (Albores-Gallo et al., 2014; Chen & Chun, 2019) and emotional pain (Zamorano & Rojas, 2017), several specific emotions were identified as risk factors for self-harm. The specific emotions consisted of shame (Xavier et al., 2016; Zamorano & Rojas, 2017), sadness (DeCamp & Bakken, 2016; Monto et al., 2018), anger or aggression (Albores-Gallo et

al., 2014; Tang et al., 2013), fear (Zamorano & Rojas, 2017), and hopelessness (DeCamp & Bakken, 2016). Additionally, struggles with expressing negative emotions in particular were found to be associated with self-harm (Zamorano & Rojas, 2017).

**Emotion regulation difficulties**. Difficulties associated with emotion regulation were found throughout several studies (Chen & Chun, 2019; Hankin & Abela, 2011; Madjar et al., 2019; Poon et al., 2019; Somma et al., 2017; Xavier et al., 2018). General emotion dysregulation (Somma et al., 2017) and negative affect (Chen & Chun, 2019) were found to be a risk factor for self-harm in addition lack of regulation strategies (Chen & Chun, 2019), an increased sensitivity to rewarding stimulus (Poon et al., 2019), and specific regulation issues. Regulation issues included difficulties accepting emotions (Chen & Chun, 2019), rumination (Xavier et al., 2018), avoidance (Xavier et al., 2018), negative cognitive style (Hankin & Abela, 2011), and acceptance (Madjar et al., 2019). The specific rumination strategy of brooding was found to be associated with self-harm (Xavier et al., 2018). The association of both brooding and avoidance was found to be stronger in boys even though girls reported higher rates (Xavier et al., 2018). Although acceptance would seem like an adaptive strategy Madjar and colleagues (2019) found that acceptance was associated with self-harm and this could be due to people resigning to problems existing instead of actively trying to solve them.

**Risky behaviours.** A total of six studies found different risky behaviours to be risk factors for self-harm (Çimen et al., 2017; DeCamp & Bakken, 2016; Li et al., 2019; Monto et al., 2018; Taliaferro et al., 2019; Zetterqvist, 2017). Risky behaviours in general were seen to be associated with self-harm (Zetterqvist, 2017) as well as drugs (Çimen et al., 2017; DeCamp & Bakken, 2016; Monto et al., 2018; Taliaferro et al., 2019; Zetterqvist, 2017), alcohol (Çimen et al., 2017; Li et al., 2019; Monto et al., 2018; Taliaferro et al., 2019), and smoking or consuming tobacco products (Çimen et al., 2017; Li et al., 2019; Taliaferro et al., 2019 Zetterqvist, 2017). For drugs being a risk factor for self-harm one study found this to only be the case for heterosexual adolescents and not sexual minority (DeCamp & Bakken, 2016).

**Personality and identity.** Certain personality traits were found to be risk factors for self-harm (Chen & Chun, 2019; Liu et al., 2018; Perlman et al., 2018) as well as aspects around identity formation (Gandhi et al., 2016; Luyckx et al., 2015). The personality traits that were found to be associated with self-harm consisted of impulsiveness (Chen & Chun, 2019; Liu et al., 2018), neuroticism (Perlman et al., 2018), openness to experience (Perlman et al., 2018), and low

conscientiousness (Perlman et al., 2018). In terms of identity issues around identity formation were identity confusion (Gandhi et al., 2016) as well as specific identity statuses. The identity status moratorium was found to be related to past self-harm (Luyckx et al., 2015) while the troubled-diffused was related to current self-harm (Luyckx et al., 2015).

**Self-esteem.** Issues with self-esteem were found to be risk factors for self-harm in three studies (Wang et al., 2020; Xavier et al., 2017; Xavier et al., 2016). The most extreme form of negative self thoughts, hated self, was found to be a particularly strong risk factor for self-harm (Xavier et al., 2017; Xavier et al., 2016) having both a direct impact on self-harm (Xavier et al., 2016) as well as an indirect one through depression and daily peer hassles (Xavier et al., 2016). Hated self also mediated the effect of past self-harm and depression on future self-harm (Xavier et al., 2017). Fear of self-compassion was also found to have an impact on self-harm that was mediated through depression and daily peer hassles (Xavier et al., 2016).

**Past self-harm.** Past self-harm was found to be a risk factor for future self-harm in a few studies (Çimen et al., 2017; Glenn et al., 2016; Xavier et al., 2017). Specific risk factors included higher frequency of self-harm (Glenn et al., 2016; Xavier et al., 2017), using multiple methods (Glenn et al., 2016), engaging in cutting for self-harm (Glenn et al., 2016), having a stronger implicit association with self-harm (Glenn et al., 2016), and carrying a cutting object (Çimen et al., 2017).

**Other risk factors.** Several risk factors were found that did not fit into any category. Liu and colleagues (2017) found that sleep problems, especially poor sleep quality and nightmares, to be related to an increased risk of self-harm. Issues around menstruation consisting of irregular menstruation and period pain were found to have a significant relationship with both lifetime and past year self-harm (Liu et al., 2018). In the study done by Çimen and colleagues (2017) found increased exposure to self-harm content on the internet and television were associated with an increased risk of self-harm as well as increased internet use in general. Certain types of music were also found to be associated with self-harm and consisted of rock, metal, rap, and arabesque music although the relationship is not clear (Çimen et al., 2017). Finally, in a study conducted by Li and colleagues (2019) low health literacy and problematic mobile phone use were found to both interactively and independently increase the risk of self-harm.

## Motivators

Wilkinson (2011) found several intrapersonal factors as motivators to self-harm, including emotion regulation, self-punishment, sensation seeking, and addiction, as well as the interpersonal factor of attention seeking. In the update further support was found for these motivators with some additional intrapersonal and interpersonal factors and some group differences were found. It is also worth acknowledging that in the study done by Albores-Gallo and colleagues (2014) the majority of participants reported that they did not know what motivated them to self-harm (see Figure 4).

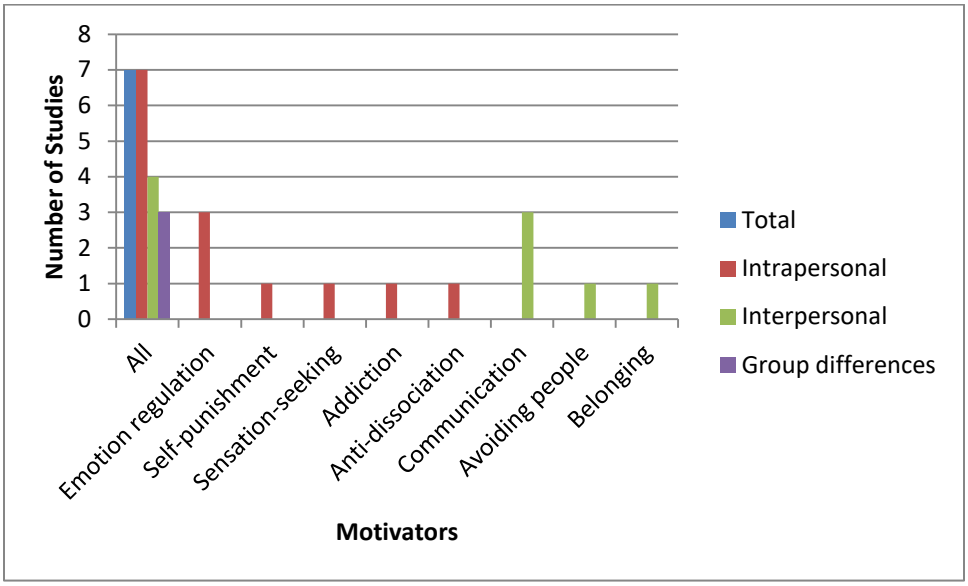


**Figure 4 - Studies that found results related to motivators of self-harm**

**Intrapersonal.** Similar to the findings by Wilkinson (2011) a higher number of studies found intrapersonal motivators for self-harm (Albores-Gallo et al., 2014; Çimen et al., 2017; Efe & Erdem, 2018; Victor & Klonsky, 2018; Young et al., 2014; Zamorano & Rojas, 2017; Zetterqvist, 2017). The most reported intrapersonal motive was emotion regulation (Albores-Gallo et al., 2014; Victor & Klonsky, 2018; Young et al., 2014) followed by self-punishment (Albores-Gallo et al., 2014), sensation-seeking (Çimen et al., 2017), addiction (Albores-Gallo et al., 2014), and anti-dissociation (Çimen et al., 2017).

**Interpersonal.** Several studies in the update found interpersonal motives for self-harm (Efe & Erdem, 2018; Young et al., 2014; Zamorano & Rojas, 2017; Zetterqvist, 2017), but unlike Wilkinson (2011), attention seeking was not among the factors. Instead, communication (Efe & Erdem, 2018; Young et al., 2014; Zetterqvist, 2017), avoiding people (Young et al.,

2014), and belonging to a group (Young et al., 2014) were factors that were found to be motivators for self-harm.

**Group differences.** Across studies some group differences emerged in terms of motivations for self-harm. Males were more likely to engage in self-harm to prevent dissociation (Çimen et al., 2017), while females exhibited more addictive components of self-harm (Albores-Gallo et al., 2014). Also, those with type one diabetes showed more social, autonomic, and overall functions of self-harm when compared to adolescents without diabetes (Efe & Erdem, 2018).

## Techniques

Different aspects around techniques of self-harm were found in both the Wilkinson (2011) review and the update. These aspects consist of number of methods utilized, common locations on the body for self-harm, and common methods of self-harm. The Wilkinson (2011) review also looked at common tools used for self-harm such as erasers, pins, cigarettes, candles, lighters, scissors, blades, and glass or mirrors. Information on tools used was not found in the studies for this update review. It is also worth noting that Wilkinson (2011) explained that ambiguity around what defines self-harm makes it so certain methods may be included or omitted in certain studies making a holistic picture hard to obtain. In addition, differences across demographic groups in terms of techniques of self-harm were also found (see Figure 5).

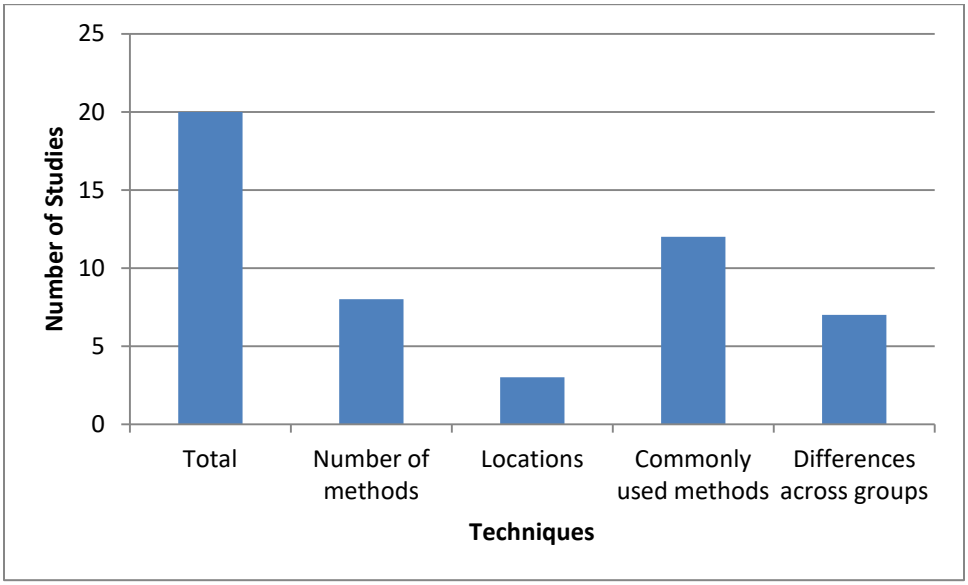


**Figure 5 - Studies that found results about techniques of self-harm**

**Number of methods.** The results from the Wilkinson (2011) review found that often multiple methods of self-harm are utilized. Even though some studies found the majority of participants engaged in only one method of self-harm (Çimen et al., 2017; Gandhi et al., 2016) the majority of studies echoed the findings by Wilkinson (2011) with the majority of participants utilizing multiple methods (Chen & Chun, 2019; Glenn et al., 2016; Gratz et al., 2012; Luyckx et al., 2015; Tang et al., 2013; Victor & Klonsky, 2018). Studies found that the number of methods raged at around one to five (Tang et al., 2013) or one to seven (Victor & Klonsky, 2018) with an average number of methods being two (Tang et al., 2013; Victor & Klonsky, 2018).

**Locations.** Wilkinson (2011) stated that many locations on the body are the target of self-harm with concealment being a major concern when choosing the location. In the update the specific locations found to be most likely to be the target of self-harm were the arms (Albores-Gallo et al., 2014; Xavier et al., 2018; Xavier et al., 2017) and legs (Albores-Gallo et al., 2014; Xavier et al., 2017) with other common targets being the feet, hands, fingers, nails, and toes (Xavier et al., 2017). Given that the most common locations and the majority of other locations are easily concealed support was found for the findings from the Wilkinson (2011) review.

**Commonly used methods.** Methods of self-harm found by Wilkinson (2011) include cutting, carving, scratching, rubbing, burning, and hitting. In the update the most common method was cutting (Albores-Gallo et al., 2014; Chen & Chun, 2019; Perlman et al., 2018; Somma et al., 2017; Victor & Klonsky, 2018) with five studies finding it to be the most common followed by hitting and banging (Çimen et al., 2017; Claes et al., 2015; Glenn et al., 2016; Li et al., 2019). Some studies included not only the most common method of self-harm found in their results but also the other common methods found in the particular study. Other common methods included scratching (Chen & Chun, 2019; Li et al., 2019; Luyckx et al., 2015; Somma et al., 2017), carving (Cerutti et al., 2011; Chen & Chun, 2019; Glenn et al., 2016; Somma et al., 2017), picking (Albores-Gallo et al., 2014; Glenn et al., 2016), and biting (Albores-Gallo et al., 2014; Victor & Klonsky, 2018) (see Figure 6). Burning was found to be the least common method (Claes et al., 2015; Luyckx et al., 2015).

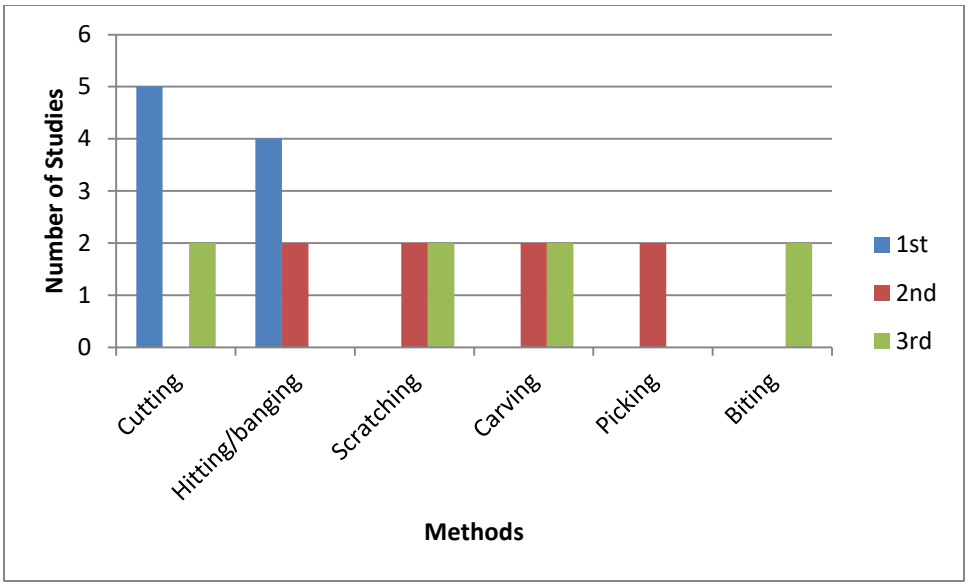


**Figure 6 - Studies that reported 1st, 2nd, and 3rd most common methods**

**Differences across groups**. Across the studies for the update several differences were found across demographic groups. Girls were shown to be more likely to engage in cutting (Albores-Gallo et al., 2014; Gandhi et al., 2016; Luyckx et al., 2015; Victor & Klonsky, 2018; Wan et al., 2015), while boys were more likely to used banging and hitting as methods (Gandhi et al., 2016; Gratz et al., 2012; Li et al., 2019; Victor & Klonsky, 2018; Wan et al., 2015). The specific groups of White girls and Black boys were found to be particularly prone to engaging in cutting (Gratz et al., 2012). Also, girls were more likely to harm their forearms and wrists (Albores-Gallo et al., 2014). Furthermore, those with type one diabetes were more likely to engage in behaviours specifically related to the complication of disease management (Efe & Erdem, 2018).

## Social Contagion

When looking at factors around the social contagion of self-harm, Wilkinson (2011) highlighted peer pressure and media with a specific emphasis on the internet as being the major factors with the social contagion of self-harm. The research in this update found similar results with multiple studies finding a relationship between having a friend that self-harms and engaging in self-harm (Çimen et al., 2017; Victor & Klonsky, 2018; Zetterqvist, 2017). However, little evidence was found of friends directly encouraging, suggesting, or assisting with self-harm (Victor & Klonsky, 2018). Additionally, Çimen and colleagues (2017) found that coming across self-harm content on the internet or television to be related to self-harm as well as increased time

on the internet in general. Some studies also found aspects around identity to be associated with self-harm (Çimen et al., 2017; Young et al., 2014). Young and colleagues (2014) found support for the 'alternative identity' effect where those who identify as alternative are four to eight times more likely to engage in self-harm while those who identify as jocks are less likely to and nerd identity appears to be unrelated to self-harm likelihood. Further, Çimen and colleagues (2017) found that self-harm to be higher among adolescents who listen to metal, rock, rap, and arabesque music and lower among those that listen to folkloric and classical music.

**Assessment**

In terms of assessment of self-harm, the results found in the Wilkinson (2011) review focused mostly on discovery of self-harm mostly done through the adolescent confiding in a school counsellor, teacher, or friend while some found that counsellors identified the symptoms without the self-harmer coming forward. Studies in the update looked at specific tool to help assess for self-harm either in general or specifically non-suicidal self-injury disorder.

**Self-harm in general.** It has been shown that depending on the instrument used to assess for self-harm different rates may appear (Young et al., 2014). In the study done by Young and colleagues (2014) the rates of self-harm varied across instrument whereby the self-harm behaviour questionnaire (SHBQ) which assessed lifetime self-harm had a lower rate than the functional assessment of self-mutilation (FASM) which measured past year self-harm. Given that the past year falls under lifetime these discrepant ratings indicate that either the SHBQ missed individuals or the FASM had individuals indicate past year self-harm when none was actually present (Young et al., 2014). Another assessment tool that has been shown to be helpful at identifying self-harmers is the implicit association test for self-harm (SI-IAT), which has found that individuals who self-harm have a stronger association with self-harm above demographic and psychological correlates (Glenn et al., 2016). The SI-IAT is especially effective for those who self-harm by cutting (Glenn et al., 2016).

**Non-suicidal self-injury disorder.** In a study done by Zetterqvist (2017) found that those who met all criteria for NSSI-D except for self-harm causing them distress or impairment showed fewer social functions, less interpersonal negative events, less anxiety and post-traumatic stress, and the duration of self-harming thoughts was shorter. On the other hand, those who met the criteria for NSSI-D including distress or impairment showed higher severity and frequency

indicating that this specific criterion is beneficial in identifying those who have more severe self-harming behaviours (Zetterqvist, 2017).

## Treatment

Many different treatments have been looked at for self-harm in adolescence with Wilkinson (2011) identifying group therapy, family therapy, music therapy, journaling, mediation or relaxation techniques, and dialectical behaviour therapy (DBT) were found to be effective in reducing self-harm. Also, aspects surrounding therapy consisting of utilizing a biopsychosocial framework, coping, and therapeutic relationship were found to be important factors to improve treatment effectiveness (Wilkinson, 2011). In the update studies found that even though those who self-harm may have more professional contact (Zetterqvist, 2017) still only a minority seek help due to injuries (Luyckx et al., 2015). Other factors found to be associated with treating self-harm were the therapeutic relationship, coping, and family with the additional treatment program emotion regulation individual therapy for adolescents (ERITA) (see Figure 7).

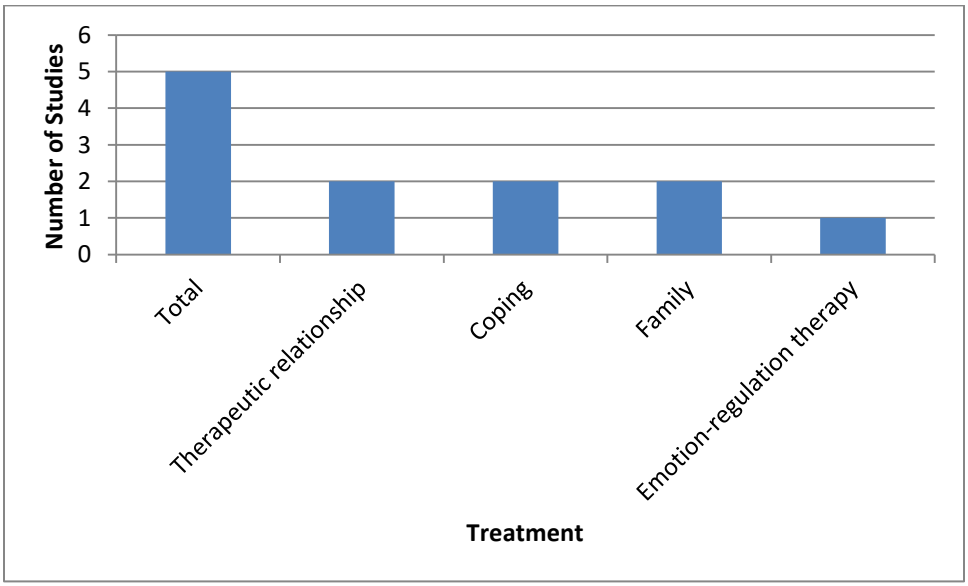


**Figure 7 - Studies that showed results for treatment**

**Therapeutic relationship.** Consistent with the results from Wilkinson (2011) studies in the update found the importance of the therapeutic relationship (Norton, 2011; Zamorano & Rojas, 2017). Although self-harm is difficult for practitioners the development of understanding and empathy is crucial for effective intervention (Norton, 2011; Zamorano & Rojas, 2017). Norton (2011) went on to find that effective utilization of transference and countertransference

was important for developing the therapeutic relationship and provide a corrective emotional experience for the client that results in a reduction in anxiety.

**Coping**. Building on the findings presenting by Wilkinson (2011), coping was found to be a beneficial factor for treating self-harm. Support has been shown for treating emotion regulation difficulties can in turn result in improvement in self-harm (Bjureberg et al., 2018). Also, Norton (2011) found that replacing self-harming behaviours with another form of coping such as an art and writing journal can be effective for depicting one's inner state in a more adaptive way.

**Family.** The importance of family being included in the treatment of adolescent self-harm as shown by Wilkinson (2011) was further shown in the update. Zamorano and Rojas (2017) emphasized the importance of including family in the treating of self-harm as self-harm does not just impact the adolescent engaging in the behaviour but the whole family. Additionally, support has been found for treating parents to minimize punitive responses to and increase encouragement of adolescents' negative emotional expression (Bjureberg et al., 2018).

**Emotion regulation individual therapy for adolescents.** In a study conducted by Bjureberg and colleagues (2018) support was found for the emotional regulation individual therapy for adolescents (ERITA) in treating self-harm. Significant improvements were found for self-harm frequency and versatility in addition to emotional regulation difficulties and global functioning that were maintained at three and six month follow up (Bjureberg et al., 2018).

## Prevention

The prevention program signs of self-injury (SOSI) was found in the review done by Wilkinson (2011). Although no formal program was found in the studies in this update review several studies found results related to prevention in the form of protective factors. Protective factors fell into the categories of interpersonal, coping, development, school, and music (see Figure 8).

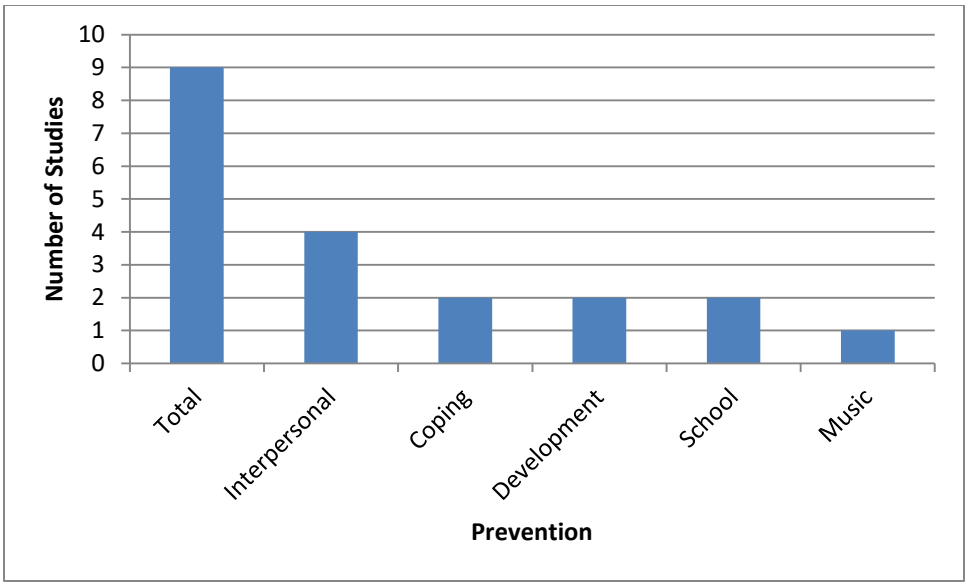


**Figure 8 - Studies that found result of prevention of self-harm**

**Interpersonal.** Several interpersonal protective factors were found consisting of family (Claes et al., 2015; Gandhi et al., 2016; Shek & Yu, 2012), friends (Gandhi et al., 2016; Li et al., 2019), and general connection. In terms of family higher levels of perceived parental support (Claes et al., 2015; Gandhi et al., 2016) and higher family functioning (Shek & Yu, 2012) were found to be potential protective factors for self-harm. Having more friends (Li et al., 2019) and feeling a strong attachment to friends (Gandhi et al., 2016) were found to be potential factors that reduce the risk of self-harm. Also, feeling connect and accepted by school peers appears to protect against self-harm (Kidger et al., 2015).

**Coping.** Some studies found aspects of being able to cope using different emotion regulation strategies to help protect against self-harm (Madjar et al., 2019; Voon et al., 2014). The different emotion regulation strategies included refocusing on planning (Madjar et al., 2019), putting into perspective (Madjar et al., 2019), and cognitive reappraisal (Voon et al., 2014).

**Development.** Two aspects of development were found to be protective against self-harm (Gandhi et al., 2016; Shek & Yu, 2012). The process of identity development through identity synthesis was found to be negatively related to self-harm (Gandhi et al., 2016). Also, general positive youth development was found to be protective against self-harm (Shek & Yu, 2012).

**School.** Different aspects of school experience were found to be potential protectors against self-harm (Kidger et al., 2015; Shek & Yu, 2012). Academic and school competence was

found to be negatively related to self-harm (Shek & Yu, 2012) as well as school enjoyment (Kidger et al., 2015), perceived consistency of teachers (Kidger et al., 2015), and a general connection to school (Kidger et al., 2015).

**Music.** Although it is not clear what the relationship between music and self-harm entails a study done by Çimen and colleagues (2017) found listening to certain music to be related to lower rates of self-harm. Of those who listened to folkloric music there were no cases of self-harm and those who listened to classical music had the second lowest self-harm prevalence (Çimen et al., 2017).

## Adult Review

Of the sixty-seven studies included in analysis a wide range of prevalence rates were reported (see Figure 9). In terms of lifetime self-harm prevalence, a range of 2% - 83.8% were found. All of the studies that found prevalence rates above 80% came from online samples (Black et al., 2019; Black & Mildred, 2013) and potentially resulted from a sampling bias. The mean prevalence for lifetime self-harm was 32.17%. When the potential outlier studies of over 80% were removed the range changed to 2% - 69.4% and a mean of 28% was found. Additionally, the majority of percentages that were under 5% were found in the general community instead of college or online samples. In terms of past year prevalence, the range was from 3.4% - 72.6%. Once again, the major outlier was from one of the same online samples (Black et al., 2019) and there is the potential of a sample bias. The mean prevalence for past year self-harm was 25.17%. When removing the potential outlier, the range for past year self-harm is 3.4% - 32.7% with a mean of 18.39%.

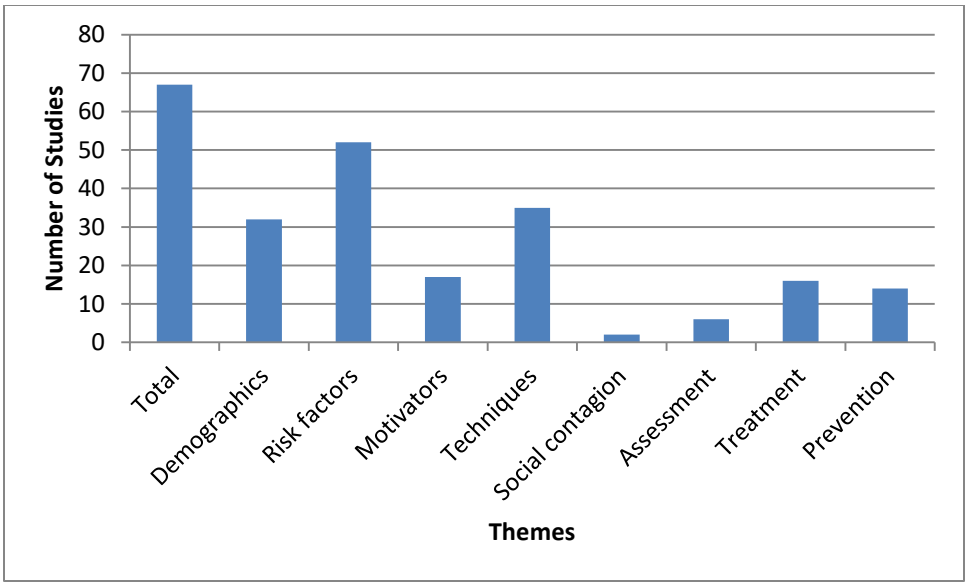


Figure 9 - Studies in Adult Review

## Demographics

Although not all studies had diverse enough samples to find demographic differences in self-harm there were still some findings in terms of gender, age, sexual orientation, race, socio-economic status, education, and other demographics (see Figure 10).

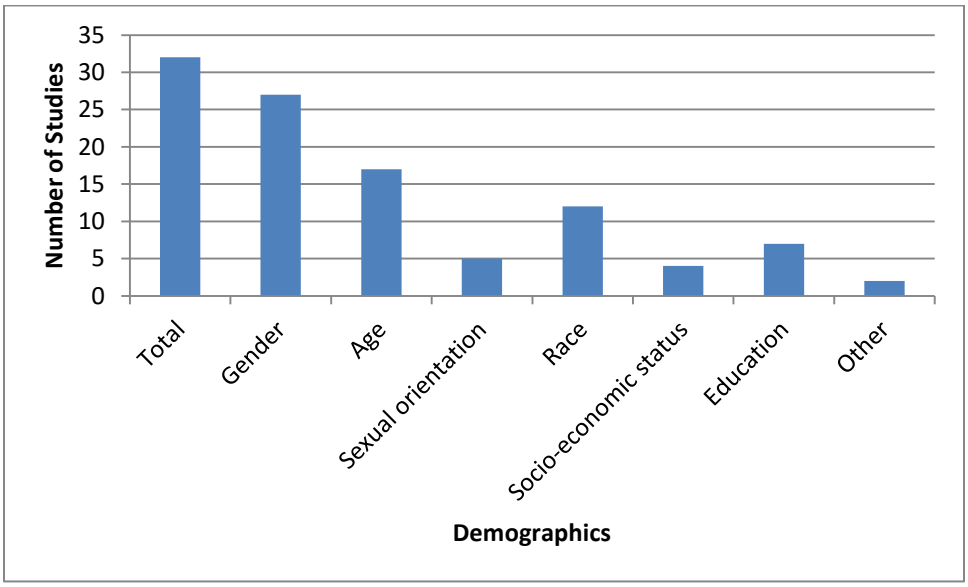


Figure 10 - Studies that found demographic results

**Gender**. In terms of gender differences there are some mixed results. While some studies found differences between men and women with respect to self-harm, the majority did not. Of those that did find gender differences, one found higher instances of self-harm among men

(Davis et al., 2017), while five found higher rates among women (Brausch et al., 2016; Dawkins et al., 2019; Glenn et al., 2017; Kuentzel et al., 2012; Muehlenkamp et al., 2010). On the other hand, a total of nineteen studies found no gender differences (Ammerman et al., 2017; Andover et al., 2020; Andover, 2014; Cerutti et al., 2012; Croyle & Waltz, 2007; Gollust et al., 2008; Greene et al., 2019; Jarvi et al., 2017; Jenkins et al., 2013; Maciejewski et al., 2017; Maciejewski et al., 2014; Peters et al., 2018; Polanco-Roman et al., 2015; Schatten et al., 2015; Serras et al., 2010; Smith & Perrin, 2017; Taliaferro & Muehlenkamp, 2015; Tresno et al., 2012; Tyler et al., 2010). The study by Gollust and colleagues (2008) found that men were more likely to report self-harm than women, however these differences were not significant. Although on average there do not appear to have gender differences between men and women in terms of self-harm, some studies did find particularly vulnerable groups in terms of gender (Davey et al., 2016; Dickey et al., 2015). Two studies found transgender individuals to be at particular risk for self-harm. The study conducted by Davey and colleagues (2016) found that trans men were at additional risk over trans women for self-harm. Dickey and colleagues (2015) found similar findings but expanded on the Davey et al.'s study. This study found that gender queer individuals were at highest risk followed by trans men, non-binary individuals, and finally trans women (Dickey et al., 2015).

**Age.** In terms of age and the risk of self-harm there are mixed results as seven studies found no differences across age groups (Andover et al., 2020; Davis et al., 2017; Davis et al., 2014; Gollust et al., 2008; Jenkins et al., 2013; Kleiman et al., 2015; Schatten et al., 2015), while ten found that younger individuals were at higher risk for self-harm (Ammerman et al., 2017; Andover, 2014; Davey et al., 2016; Glenn et al., 2017; Kuentzel et al., 2012; Maciejewski et al., 2017; Maciejewski et al., 2014; Peters et al., 2018; Segal et al., 2016; Zielinski et al., 2016). Although Davis and colleagues (2014) found that their sample of individuals who engaged in self-harm were younger the differences in age between those who self-harm and those who do not were not significant.

**Sexual orientation.** The majority of studies that looked at differences in sexual orientation and self-harm found that sexual minority individuals showed a higher rate of self-harm compared to heterosexual individuals (Davis et al., 2017; Dickey et al., 2015; Gollust et al., 2008; Serras et al., 2010; Tyler et al., 2010). A total of five studies revealed this finding while only one study found no differences in sexual orientation and self-harm (Gollust et al., 2008).

Although Gollust and colleagues (2008) found no differences when looking at sexual orientation and self-harm when comparing sexual minority individuals against heterosexual individuals they did find specific vulnerable groups according to sexual orientation. Bisexual men and lesbians seemed to have higher rates of self-harm compared to heterosexual individuals indicating that particular minority sexual orientations might be particularly vulnerable in terms of self-harm instead of all sexual minorities being equally vulnerable when compared to heterosexuals (Gollust et al., 2008). Furthering this finding Dickey and colleagues (2015) found that those who identified their sexual orientation as queer has the highest prevalence of self-harm followed by those who reported 'other', bisexual, asexual, lesbian or gay, and heterosexual individuals had the lowest prevalence.

**Race**. The results of racial differences in terms of self-harm appear to be mixed. This may be in part due to the fact that not all studies that looked at race had the statistical power to look at each individual race and therefore had to use the groups white and non-white (Schatten et al., 2015; Taliaferro & Muehlenkamp, 2015). Of the studies that looked at race differences, four found no racial differences (Andover et al., 2020; Davis et al., 2014; Polanco-Roman et al., 2015; Serras et al., 2010), five found White individuals to have higher rates of self-harm (Ammerman et al., 2017; Andover, 2014; Glenn et al., 2017; Gollust et al., 2008; Jenkins et al., 2013), and two found non-White individuals to have higher rates of self-harm (Schatten et al., 2015; Taliaferro & Muehlenkamp, 2015). However, in the studies that were able to look closer at different racial groups, different results emerged. Kuentzel and colleagues (2012) found that the racial groups with the highest rate of self-harm were multiracial and Native American; however even in the ethnically diverse sample, the Native American group was still under powered. Additionally, they found that White and Hispanic individuals fell towards the middle in terms of self-harm prevalence and Middle Eastern and Black individuals were least likely to engage in self-harm (Kuentzel et al., 2012). Other studies found similar results in terms of Black individuals being less likely to engage in self-injury (Ammerman et al., 2017; Jenkins et al., 2013). A study done by Andover and colleagues (2017) brought a further layer when they found no differences between Black and White men in terms of self-harm, but none of the Black women in the sample reported self-harm. This made it so when comparing only the Black sample against the White sample White individuals were seen to report self-harm more frequently. In

addition to finding that Black individuals were less likely to engage in self-harm Jenkins and colleagues (2013) also found Asian individuals to be less likely to report self-harm.

**Socio-economic status.** Four studies looked at socio-economic status in relation to self-harm prevalence. A total of three studies found no differences in terms of socio-economic status (Davis et al., 2017; Davis et al., 2014; Kuentzel et al., 2012) while one study (Gollust et al., 2008) found those of lower socio-economic status to have higher prevalence of self-harm. Even so, one study that looked specifically at homeless young adults found that they might be a particularly at risk group for self-harm (Tyler et al., 2010).

**Education.** Several studies looked at relationship between education and the prevalence of self-harm. Of those that looked at the impact of education five studies found no differences (Andover, 2014; Davis et al., 2017; Davis et al., 2014; Gollust et al., 2008; Schatten et al., 2015) and two studies found undergraduates to report higher rates of self-harm (Serras et al., 2010; Taliaferro & Muehlenkamp, 2015). Although initially, Gollust and colleagues (2008) found undergraduates to be more likely to report self-harm, after controlling for covariates, no significant association was found. Additionally, two studies found that freshman to have particularly higher rates of self-harm compared to all other years of university student (Serras et al., 2010; Taliaferro & Muehlenkamp, 2015) s. Other findings regarding education were that public colleges reported higher rates of self-harm than private (Serras et al., 2010) and those who reported fewer years of education had higher rates of self-harm (Davis et al., 2014).

**Other**. In addition to the demographic categories highlighted, a couple of studies found additional groups that reported higher prevalence of self-harm. Gollust and colleagues (2008) found that individuals in a relationship reported higher rates of self-harm than those who were single. Also, Kuentzel and colleagues (2012) found that Atheist, Agnostic, and non-believers reported higher rates of self-harm and Baptist and Muslim individuals reported the lowest rates.

### Risk Factors

Many different risk factors were found across studies with the most common being those associated with mental health and illness, followed by emotion regulation difficulties, self-esteem, emotions, interpersonal, risky behaviours, trauma, biological, personality, past and current self-harming behaviour, and stress (see Figure 11).

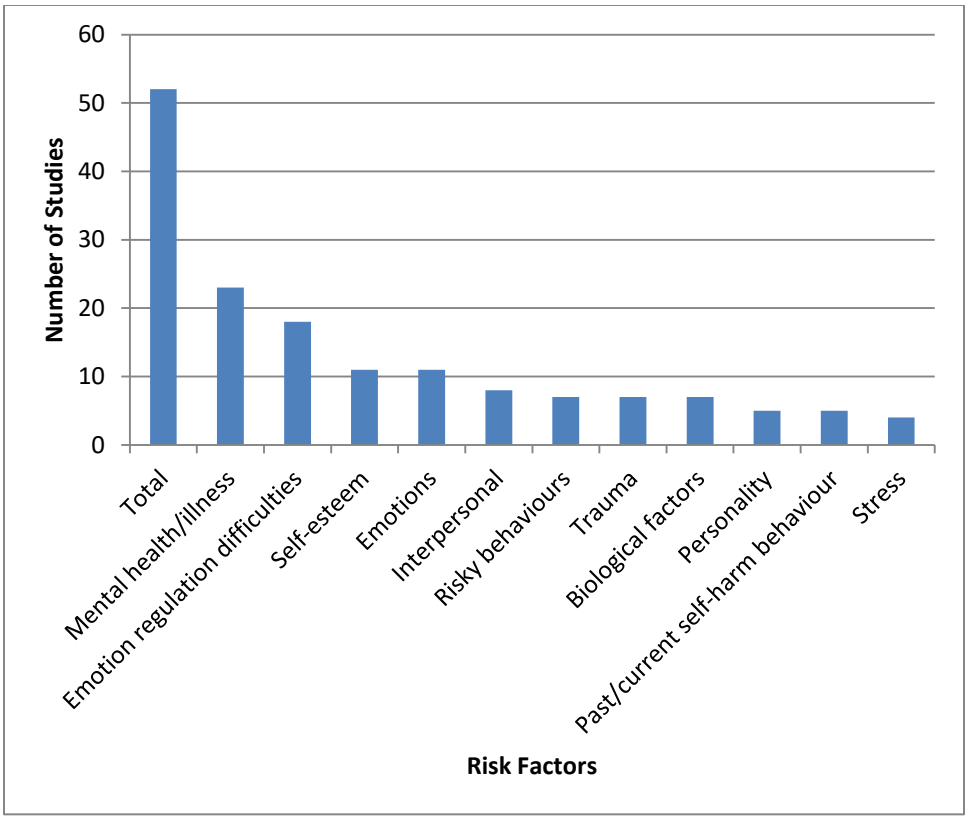


**Figure 11 - Studies that found risk factors**

**Mental health and illness.** Aspects around mental health and illness were found to be the most common risk factors for self-harm (Andover, 2014; Bachtelle & Pepper, 2015; Cerutti et al., 2012; Croyle & Waltz, 2007; Davis et al., 2014; Dawkins et al., 2019; Dickey et al., 2015; Gelinas & Wright, 2013; Gollust et al., 2008; Ogle & Clements, 2008; Peters et al., 2019; Peters et al., 2018; Polanco-Roman et al., 2015; Schatten et al., 2015; Serras et al., 2010; Smith & Perrin, 2017; Stacy et al., 2018; Taliaferro & Muehlenkamp, 2015; Tresno et al., 2012; Williams et al., 2018; Zielinski et al., 2018; Zielinski et al., 2016; Zullig, 2016). Findings consisted of mental health and illness in general (Dawkins et al., 2019; Gelinas & Wright, 2013; Ogle & Clements, 2008; Peters et al., 2019; Smith & Perrin, 2017; Taliaferro & Muehlenkamp, 2015; Zielinski et al., 2018; Zullig, 2016) and specific disorders. Depression was the most commonly found disorder to be a risk factor for self-harm (Bachtelle & Pepper, 2015; Davis et al., 2014; Dickey et al., 2015; Gelinas & Wright, 2013; Gollust et al., 2008; Peters et al., 2018; Polanco-Roman et al., 2015; Schatten et al., 2015; Serras et al., 2010; Smith & Perrin, 2017; Stacy et al., 2018; Tresno et al., 2012; Williams et al., 2018; Zielinski et al., 2018; Zielinski et al., 2016) while the specific symptom of anhedonia was not (Zielinski et al., 2016). Depression was also

found to be more associated with self-harm for emotion regulation motives (Peters et al., 2018). The second most common disorder was anxiety (Davis et al., 2014; Dickey et al., 2015; Gelinas & Wright, 2013; Gollust et al., 2008; Peters et al., 2019; Smith & Perrin, 2017; Williams et al., 2018; Zielinski et al., 2018) followed by borderline personality disorder (Andover, 2014; Bachtelle & Pepper, 2015; Cerutti et al., 2012; Peters et al., 2018; Schatten et al., 2015; Stacy et al., 2018). Borderline personality disorder also appears to be more closely related to self-harm for interpersonal motives (Peters et al., 2018). With respect to disordered eating the results present a more mixed picture. Although some studies found disordered eating to be related to self-harm (Croyle & Waltz, 2007; Taliaferro & Muehlenkamp, 2015), several did not (Black et al., 2019; Black & Mildred, 2013; Zielinski et al., 2018), while one study found disordered eating to only be a risk factor for men (Gollust et al., 2008) or was found to be a predictor of self-harm in general, but not past year self-harm (Serras et al., 2010). Other disorders and symptoms (Gelinas & Wright, 2013) were also found including bipolar (Gelinas & Wright, 2013), obsessive-compulsive (Croyle & Waltz, 2007), dissociation, and depersonalization (Cerutti et al., 2012). Additionally, the association between mental disorders and self-harm appeared to be greater for men (Gollust et al., 2008).

**Emotion regulation difficulties.** The second most common risk factor grouping was emotion regulation difficulties, which was cited in eighteen different studies (Anderson et al., 2018; Andover, 2014; Cerutti et al., 2012; Davis et al., 2014; Dawkins et al., 2019; Franklin et al., 2014; Franklin et al., 2010; Kleiman et al., 2015; Kranzler et al., 2016; Lucas et al., 2019; Muehlenkamp et al., 2010; Peters et al., 2018; Polanco-Roman et al., 2015; Schatten et al., 2015; Stacy et al., 2018; Tonta et al., 2020; Tresno et al., 2012; Zielinski et al., 2018). Emotion regulation difficulties consisted of emotion reactivity (Davis et al., 2014; Dawkins et al., 2019; Franklin et al., 2014; Franklin et al., 2010), dysregulation (Cerutti et al., 2012; Kleiman et al., 2015; Kranzler et al., 2016; Schatten et al., 2015; Zielinski et al., 2018), rumination (Cerutti et al., 2012; Polanco-Roman et al., 2015; Stacy et al., 2018; Tonta et al., 2020), social problem solving (Lucas et al., 2019), avoidance (Anderson et al., 2018; Andover, 2014), reappraisal (Davis et al., 2014), and perfectionism (Lucas et al., 2019). Rumination was found in two forms - reflecting (Polanco-Roman et al., 2015; Tonta et al., 2020) and brooding (Polanco-Roman et al., 2015; Tonta et al., 2020) with reflecting being a unique predictors of self-harm (Polanco-Roman et al., 2015). Specifically, Kleiman and colleagues (2015) found emotion regulation difficulties

to be associated with non-hitting methods of self-harm. Also, the relationship between emotion regulation difficulties has been shown to be mediated through internalizing symptoms (Kranzler et al., 2016) or lack of self-efficacy (Dawkins et al., 2019). Additionally, it is possible for the relationship between emotional distress and self-harm to be mediated by avoidance and limited emotion regulation strategies (Anderson et al., 2018).

**Self-esteem.** Low self-esteem was found to be a risk factor for self-harm in eleven studies (Alexander & Clare, 2004; Bachtelle & Pepper, 2015; Black et al., 2019; Cerutti et al., 2012; Davey et al., 2016; Dyer et al., 2013; Gelinas & Wright, 2013; Hooley et al., 2010; Taliaferro & Muehlenkamp, 2015; Williams et al., 2018; Zullig, 2016). Self-esteem risk factors included general low self-esteem (Davey et al., 2016; Williams et al., 2018), body image dissatisfaction (Black et al., 2019; Cerutti et al., 2012; Davey et al., 2016; Dyer et al., 2013; Zullig, 2016), and negative self-thoughts (Alexander & Clare, 2004; Bachtelle & Pepper, 2015; Gelinas & Wright, 2013; Hooley et al., 2010; Taliaferro & Muehlenkamp, 2015; Williams et al., 2018). Negative self-thoughts include self-blame (Gelinas & Wright, 2013), self-disgust (Bachtelle & Pepper, 2015), thinking of oneself as different from others (Alexander & Clare, 2004), and the most extreme self-hate (Gelinas & Wright, 2013; Hooley et al., 2010).

**Emotions.** Multiple studies found emotions to be risk factors for self-harm (Alexander & Clare, 2004; Anderson et al., 2018; Bachtelle & Pepper, 2015; Croyle & Waltz, 2007; Gelinas & Wright, 2013; Greene et al., 2019; Kiekens et al., 2017; Kleiman et al., 2015; Stroehmer et al., 2015; Williams et al., 2018; Ziebell et al., 2020). Several emotions were found to be risk factors for self-harm in addition to general emotional pain (Anderson et al., 2018; Kiekens et al., 2017; Stroehmer et al., 2015; Williams et al., 2018) and invalidated emotions (Alexander & Clare, 2004). Specific emotions included fear (Stroehmer et al., 2015), disappointment (Stroehmer et al., 2015), sadness (Stroehmer et al., 2015), emptiness (Stroehmer et al., 2015), guilt (Gelinas & Wright, 2013), helplessness (Gelinas & Wright, 2013), shame (Bachtelle & Pepper, 2015; Croyle & Waltz, 2007), and anger or aggression (Gelinas & Wright, 2013; Stroehmer et al., 2015). Although anger and aggression were found in some studies to be related to self-harm (Gelinas & Wright, 2013; Stroehmer et al., 2015) Croyle and Waltz (2007) found no relationship between self-harm and anger or aggression, while Kleiman and colleagues (2015) found anger and aggression to only be a risk factor for hitting types of self-harm. In addition to specific emotions being risk factors of self-harm two studies also found an inability to identify emotions was

related to an increased likelihood in engaging in self-harm (Greene et al., 2019; Ziebell et al., 2020). Greene and colleagues (2019) found that alexthymia, which is the inability to identify emotions in either oneself or others, to be related to self-harm. While Ziebell and colleagues (2020) found that those who engage in self-harm are more likely to mistake angry expressions for happy ones.

**Interpersonal factors.** Several studies found interpersonal factors to be associated with self-harm (Davey et al., 2016; Davis et al., 2017; Gelinas & Wright, 2013; Martin et al., 2017; Smith & Perrin, 2017; Tyler et al., 2010; Williams et al., 2018; Zullig, 2016) and can be categorized into lack of social support (Davey et al., 2016; Davis et al., 2017; Williams et al., 2018; Zullig, 2016) and interpersonal issues (Gelinas & Wright, 2013; Martin et al., 2017; Smith & Perrin, 2017; Tyler et al., 2010; Williams et al., 2018). Lack of support from family (Davis et al., 2017; Williams et al., 2018; Zullig, 2016), friends (Davis et al., 2017; Zullig, 2016), partners (Davis et al., 2017; Zullig, 2016), and school (Zullig, 2016) were all shown to be risk factors for self-harm. Davis and colleagues (2017) found that men reported significantly less social support from family members. Interpersonal issues included issues with family (Gelinas & Wright, 2013; Martin et al., 2017; Williams et al., 2018), partners (Gelinas & Wright, 2013; Martin et al., 2017), friends (Gelinas & Wright, 2013; Martin et al., 2017), work or school (Smith & Perrin, 2017), running away (Tyler et al., 2010), harassment or rejection (Smith & Perrin, 2017), and preoccupied attachment (Martin et al., 2017). Issues with family included negative parental relationships, poor family communications, family violence, and alcoholism from a family member (Gelinas & Wright, 2013; Williams et al., 2018). Issues with partners included infidelity and abuse (Gelinas & Wright, 2013), while issues with friends included peer pressure (Gelinas & Wright, 2013). Additionally, irregular church attendance was found to be a specific interpersonal risk factor when compared to those who attended regularly or never (Davis et al., 2017). However, irregular church attendance was found to only be significant for sexual minority women (Davis et al., 2017).

**Risky behaviours.** Across studies four main forms of risky behaviours were found to be potential risk factors for self-harm (Few et al., 2015; Gollust et al., 2008; Greene et al., 2019; Martin et al., 2017; Ogle & Clements, 2008; Serras et al., 2010; Tyler et al., 2010). Drugs were found to be the most common risky behaviour to be associated with self-harm (Gollust et al., 2008; Serras et al., 2010; Tyler et al., 2010). Some studies found support for smoking cigarettes

(Gollust et al., 2008; Ogle & Clements, 2008; Serras et al., 2010) and gambling (Serras et al., 2010) as risk factors for self-harm. The relationship between alcohol and self-harm is more mixed. One study found a relationship between being intoxicated and self-harm (Martin et al., 2017) while others studies found no relationship between binge drinking and self-harm (Gollust et al., 2008; Ogle & Clements, 2008; Serras et al., 2010; Zielinski et al., 2018). When looking at more specific aspects around alcohol it was found that risky drinking behaviours (Greene et al., 2019; Ogle & Clements, 2008) and early onset alcohol use (Few et al., 2015) are risk factors for self-harm.

**Trauma**. Different forms of trauma were found to be risk factors for self-harm (Alexander & Clare, 2004; Croyle & Waltz, 2007; Martin et al., 2017; Muehlenkamp et al., 2010; Tresno et al., 2012; Tyler et al., 2010; Warm et al., 2003). Childhood trauma was found to be a risk factor for self-harm in three different studies (Alexander & Clare, 2004; Martin et al., 2017; Tresno et al., 2012). Of studies that found childhood trauma to be a risk factor emotional, physical, and sexual abuse were found in one (Alexander & Clare, 2004), while neglect was found in two (Martin et al., 2017; Tresno et al., 2012) and indicated as being a larger risk factor (Tresno et al., 2012). Several studies also found other form of abuse other than childhood trauma to be related to self-harm (Alexander & Clare, 2004; Croyle & Waltz, 2007; Muehlenkamp et al., 2010; Tyler et al., 2010; Warm et al., 2003) with some finding specifically sexual (Alexander & Clare, 2004; Tyler et al., 2010; Warm et al., 2003), emotional (Alexander & Clare, 2004; Croyle & Waltz, 2007), physical (Alexander & Clare, 2004; Muehlenkamp et al., 2010) abuse, and neglect (Tyler et al., 2010) to be related to self-harm. Physical abuse was shown to especially be a predictor of self-harm (Muehlenkamp et al., 2010). Additionally, post-traumatic stress disorder (PTSD) symptoms and sexual victimization were shown to be concurrent risk factors, whereby higher levels of PTSD were associated with experiencing more sexual victimization and therefore increased self-harm (Tyler et al., 2010). A similar relationship was found between sexual abuse and sexual victimization, whereby sexual abuse was related to increased experiences of sexual victimization resulting in increased self-harm (Tyler et al., 2010).

**Biological factors.** Several studies found different biological components as risk factors for self-harm (Cerutti et al., 2012; Croyle & Waltz, 2007; Hooley et al., 2010; Jenkins et al., 2013; Kuentzel et al., 2012; Maciejewski et al., 2014; Zullig, 2016). Poor physical health was shown to be a risk factor in three studies (Croyle & Waltz, 2007; Kuentzel et al., 2012; Zullig,

2016). Poor physical health was measured by an increase in somatic symptoms (Croyle & Waltz, 2007), reporting fewer physical health days (Zullig, 2016), and experiencing a head injury that resulted in a loss of consciousness listed (Kuentzel et al., 2012). A highly active behavioural activation system (BAS) was shown to be a risk factor for self-harm in a study done by Cerutti and colleagues (2012) while Jenkins and colleagues (2013) found that an imbalance of the BAS and behavioural inhibition system (BIS)[2] to actually be the risk factor for self-harm. Support for a genetic predisposition has been mixed with Maciejewski and colleagues (2014) finding support for the heritability of self-harm while Maciejewski and colleagues (2017) found no evidence of those genetically predisposed to depression to have an increased risk of self-harm. Additionally, those who engage in self-harm show higher pain thresholds (Hooley et al., 2010).

**Personality.** A total of five studies found aspects related to personality to be risk factors for self-harm (Black & Mildred, 2013; Cerutti et al., 2012; Hooley et al., 2010; Peters et al., 2019; Riley et al., 2015). The most common personality risk factor was impulsiveness with four studies finding it to be a risk factor (Black & Mildred, 2013; Cerutti et al., 2012; Peters et al., 2019; Riley et al., 2015) followed by openness to experiences, which was found in two studies (Cerutti et al., 2012; Hooley et al., 2010). Additionally, neuroticism and introversion were also found to be risk factors for self-harm (Hooley et al., 2010).

**Past and current self-harming behaviour.** Studies found that different aspects of self-harming behaviours can be seen as risk factors for future self-harm (Black & Mildred, 2013; Franklin et al., 2014; Gelinas & Wrights, 2013; Kiekens et al., 2017; Stacy et al., 2018). Self-harming versatility or the number of methods used has shown to be a risk factor for future self-harm (Franklin et al., 2014; Kiekens et al., 2017; Stacy et al., 2018). Additionally, self-harm practice patterns (Stacy et al., 2018) and low aversion to self-harm stimulus (Franklin et al., 2014) are potential risk factors for self-harm. Also, compulsive self-harm seems to be a risk factor for future impulsive self-harm (Black & Mildred, 2013). Furthermore, addiction to self-harm has been shown to be a risk factor for self-harm. A study by Gelinas and Wright (2013) found that 25% of individuals who self-harm felt that the addictive properties of self-harming was a barrier for stopping and therefore these addictive properties are a risk factor for continued self-harm.

[2] The Behavioural Activation System (BAS) promotes approach behaviour towards rewarding stimulus while the Behavioural Inhibition System (BIS) promotes avoidance towards aversive stimulus and is associated with anxiety and fear (Jenkins et al., 2013)

**Stress.** Stress was found to be a risk factor for self-harm in four studies (Dickey et al., 2015; Gelinas & Wright, 2013; Kiekens et al., 2017; Williams et al., 2018). Of the studies that found stress to be a risk factor for self-harm two found the specific form of academic stress to be a risk factor (Kiekens et al., 2017; Williams et al., 2018).

### Motivators

Multiple motivators for self-harm were found across studies that fall into the main categories of intrapersonal and interpersonal motives (see Figure 12). Of these two overarching categories intrapersonal motives were more common than interpersonal motives (Ennis et al., 2020). Additionally, it was found that the specific intrapersonal motive of affect regulation tends to be the main motive, while other motives such as communication (Andover, 2014; Peters et al., 2018; Klonsky, 2009), attention seeking (Stroehmer et al., 2015), punishment (Klonsky, 2009), and sensation seeking (Andover, 2014; Kiekens et al., 2017) are secondary. Also, a study done by Croyle and Waltz (2007) found differences in motives depending of the severity of the self-harming behaviours. Behaviours classified as low self-harm had more habitual motives while high self-harm behaviours were more episodic with internal and external motives (Croyle & Waltz, 2007). Additionally, Ennis and colleagues (2020) found that different PTSD symptom clusters to be related to different self-harm functions. The PTSD symptom cluster related to negative alterations in mood and cognitions was found to be associated with self-harm for intrapersonal functions while the PTSD symptoms related to avoidance are associated with self-harm for social functions (Ennis et al., 2020).

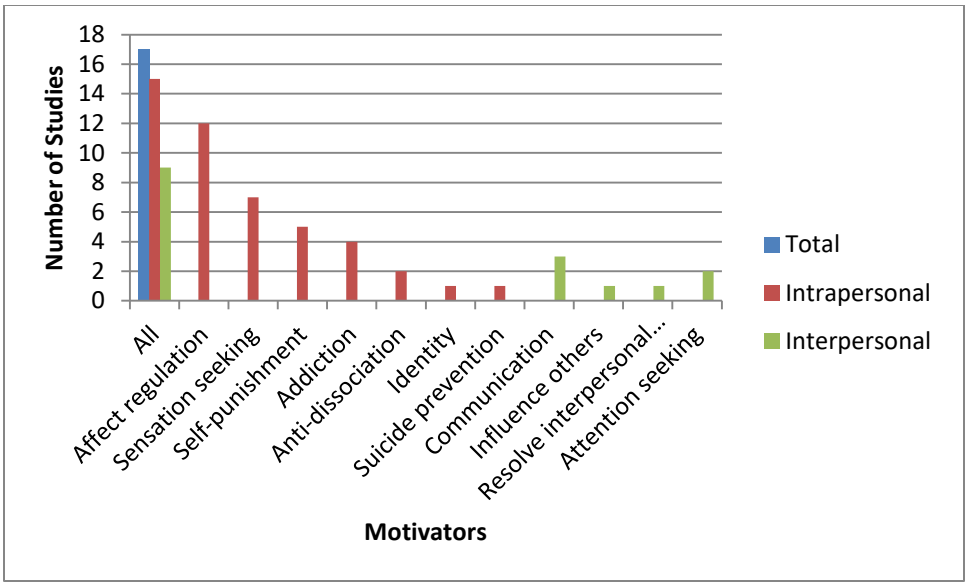


**Figure 12 - Studies that found motivators**

**Intrapersonal motives.** Fifteen studies found intrapersonal motives for self-harm that can be divided into the categories of affect regulation, self-punishment, sensation-seeking, anti-dissociation, identity, prevention of suicide, and addiction (Alexander & Clare, 2004; Anderson et al., 2018; Andover, 2014; Bachtelle & Pepper, 2015; Dawkins et al., 2019; Ennis et al., 2020; Franklin et al., 2010; Gelinas & Wright, 2013; Kiekens et al., 2017; Klonsky, 2009; Martin et al., 2017; Peters et al., 2018; Stroehmer et al., 2015; Warm et al., 2003; Williams et al., 2018). Affect regulation was the most common motive with twelve studies citing it (Alexander & Clare, 2004; Anderson et al., 2018; Andover, 2014; Dawkins et al., 2019; Franklin et al., 2010; Gelinas & Wright, 2013; Kiekens et al., 2017; Klonsky, 2009; Martin et al., 2017; Peters et al., 2018; Warm et al., 2003; Williams et al., 2018) followed by sensation seeking with seven studies (Alexander & Clare, 2004; Andover, 2014; Kiekens et al., 2017; Klonsky, 2009; Stroehmer et al., 2015; Warm et al., 2003; Williams et al., 2018) and self-punishment with five (Alexander & Clare, 2004; Bachtelle & Pepper, 2015; Gelinas & Wright, 2013; Klonsky, 2009; Williams et al., 2018). Addiction was found in four studies (Alexander & Clare, 2004; Andover, 2014; Gelinas & Wright, 2013; Williams et al., 2018) and anti-dissociation was found in two (Gelinas & Wright, 2013; Williams et al., 2018) while identity (Warm et al., 2003) and prevention of suicide (Williams et al., 2018) were both only found in one study each.

**Interpersonal motives.** Of the studies that looked at motives for self-harm nine (Andover, 2014; Bachtelle & Pepper, 2015; Ennis et al., 2020; Gilzean, 2011; Klonsky, 2009;

Peters et al., 2018; Stroehmer et al., 2015; Warm et al., 2003; Williams et al., 2018 57) cited interpersonal motives that can be put into the categories of communication (Bachtelle & Pepper, 2015; Gilzean, 2011; Warm et al., 2003), influence others (Klonsky, 2009), resolve interpersonal problems (Andover, 2014), and attention seeking (Stroehmer et al., 2015; Williams et al., 2018).

## Techniques

Studies looked at different techniques of self-harm in terms of how many methods on average an individual uses, what locations on the body are more likely to be harmed, what methods are more commonly used, specific differences among groups in terms of methods used, and practice patterns associated with self-harm (see Figure 13).

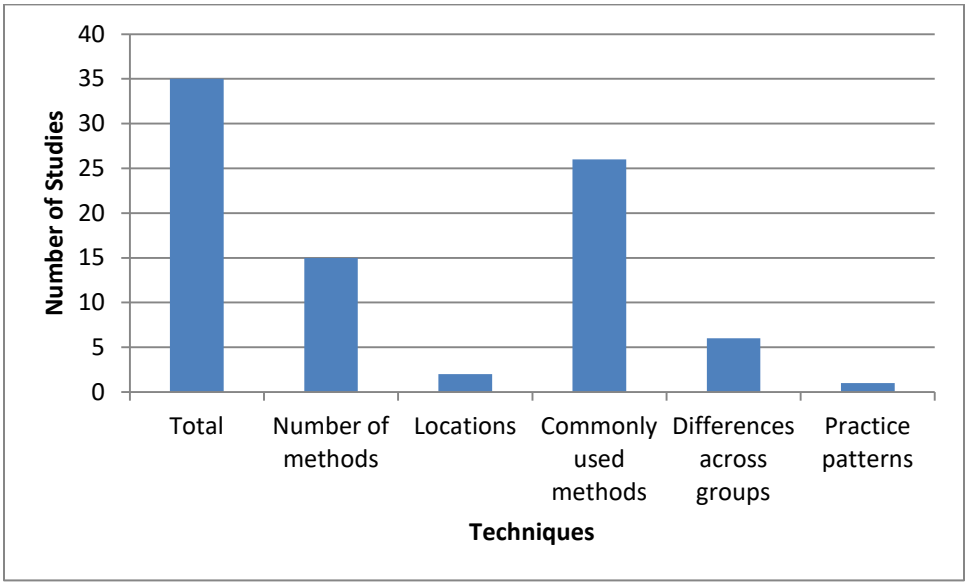


**Figure 13 - Studies that found results of techniques of self-harm**

**Number of methods.** Studies found that the number of methods utilized fall between ranges of one to eight (Schatten et al., 2015), one to ten (Stacy et al., 2018), one to eleven (Jenkins et al., 2013), and one to fifteen (Black et al., 2019; Black & Mildred, 2013). The majority of studies found that most of the participants endorsed more than one method of self-harm (Black & Mildred, 2013; Cerutti et al., 2012; Croyle & Waltz, 2007; Dawkins et al., 2019; Jarvi et al., 2017; Jenkins et al., 2013; Klonsky, 2009; Schatten et al., 2015; Serras et al., 2010; Stacy et al., 2018; Tresno et al., 2012), while three studies found the majority endorsed only one method (Davey et al., 2016; Gollust et al., 2008; Hooley et al., 2010). The average number of methods found in studies were two (Serras et al., 2010), three (Jenkins et al., 2013; Schatten et al., 2015), and four (Black & Mildred, 2013; Klonsky, 2009; Stacy et al., 2018).

**Locations.** Stroehmer and colleagues (2015) found self-harming adults from the community tend to self-harm on more locations on the body and more hidden locations when compared to patients with borderline personality disorder. The most commonly endorsed locations to self-harm were arms, hands, fingers, and nails followed by torso, belly, and buttocks, and finally legs, feet, and toes (Davey et al., 2016).

**Commonly used methods.** Across studies the most commonly utilized method of self-harm was cutting, which was found to be the most common in a total of twenty-one studies (Black et al., 2019; Black & Mildred, 2013; Brausch et al., 2016; Davey et al., 2016; Dawkins et al., 2019; Dickey et al., 2015; Ennis et al., 2020; Few et al., 2015; Gelinas & Wright, 2013; Greene et al., 2019; Hooley et al., 2010; Kuentzel et al., 2012; Muehlenkamp et al., 2010; Polanco-Roman et al., 2015; Schatten et al., 2015; Tonta et al., 2020; Tresno et al., 2012; Tyler et al., 2010; Warm et al., 2003; Williams et al., 2018; Zielinski et al., 2018). This was far more than the number of studies that found any other method to be the most common method with punching and hitting being the next most common across studies with only three studies finding it as the most common method (Martin et al., 2017; Serras et al., 2010; Zielinski et al., 2018). Some studies included not only the most common method of self-harm found in their results but also other common methods found in the particular study. Other common methods included scratching (Black et al., 2019; Black & Mildred, 2013; Davey et al., 2016; Dawkins et al., 2019; Gelinas & Wright, 2013; Hooley et al., 2010; Klonsky, 2009; Kuentzel et al., 2012; Tyler et al., 2010; Warm et al., 2003; Williams et al., 2018) and burning (Brausch et al., 2016; Martin et al., 2017; Muehlenkamp et al., 2010; Tyler et al., 2010) (see Figure 14). The method that was endorsed as least common across studies was sticking self with sharp objects (Gelinas & Wright, 2013; Jarvi et al., 2017; Muehlenkamp et al., 2010).

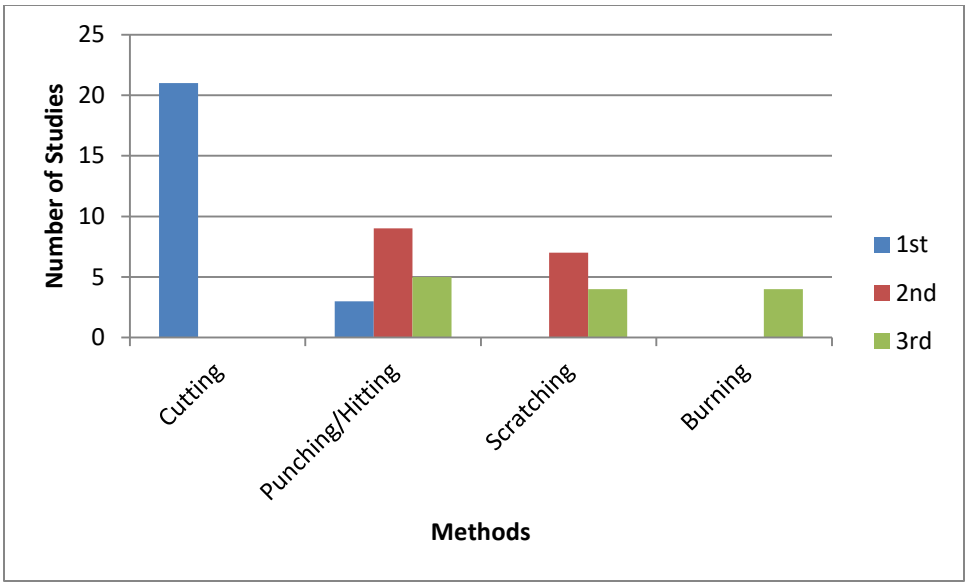


**Figure 14 - Studies that reported 1st, 2nd, and 3rd most common methods**

**Differences across groups.** When looking at different demographic groups certain behaviours appear to be more common than others. Men are more likely to engage in hitting (Gollust et al., 2008; Kleiman et al., 2015) and carving (Tresno et al., 2012) methods while women are more likely to use cutting (Cerutti et al., 2012) and wound interference (Gollust et al., 2008) as a form of self-harm. Sexual minority individuals are more likely to engage in scratching while heterosexual individuals are more likely to use burning (Tyler et al., 2010). A study done by Kleiman and colleagues (2015) found that Black individuals were less like to use both hitting and other forms of self-harm than just other forms. In terms of least common behaviour undergraduates are least likely to carve while graduates are least likely to rub their skin against a rough surface (Serras et al., 2010).

**Practice patterns.** Stacy and colleagues (2018) conducted a study that looked at practice patterns of self-harm and found that the majority of self-harming individuals engage in at least one practice pattern providing evidence for premeditation and the predictability of self-harm. Practice patterns included preparing to self-harm in the same way, utilizing the same tool to self-harm, harming the same body part, and cleaning the injury in a similar way (Stacy et al., 2018). Additionally, a relationship between practice patterns and the habituation and severity of self-harm was found with the number of methods mediating this relationship (Stacy et al., 2018).

## Social Contagion

Although the majority of studies did not report findings that are related to social contagion, two studies did (Gelinas & Wright, 2013; Williams et al., 2018). In the study by Williams and colleagues (2018), 60% of individuals who reported self-harming behaviours indicated that they had learnt about self-harm from a friend, family member, or other person. This indicates that there is at least a partial social aspect in terms of starting to engage in self-harm. Additionally, in the study done by Gelinas and Wright (2013) 28.1% of individuals who engaged in self-harm reported interpersonal issues as barriers to ceasing self-harm. Of these interpersonal issues peer pressure from friends was one of them (Gelinas & Wright, 2013). This indicates that not only is there a potential social role in the starting of self-harm but also in the continuing of it.

## Assessment

In terms of assessment multiple studies looked at different tools with regards to different aspects of assessing deliberate self-harm. Of these studies looked at assessment for non-suicidal self-injury disorder (NSSI-D), assessing for self-harm in general, and assessing for variables related to self-harm (see Figure 15).

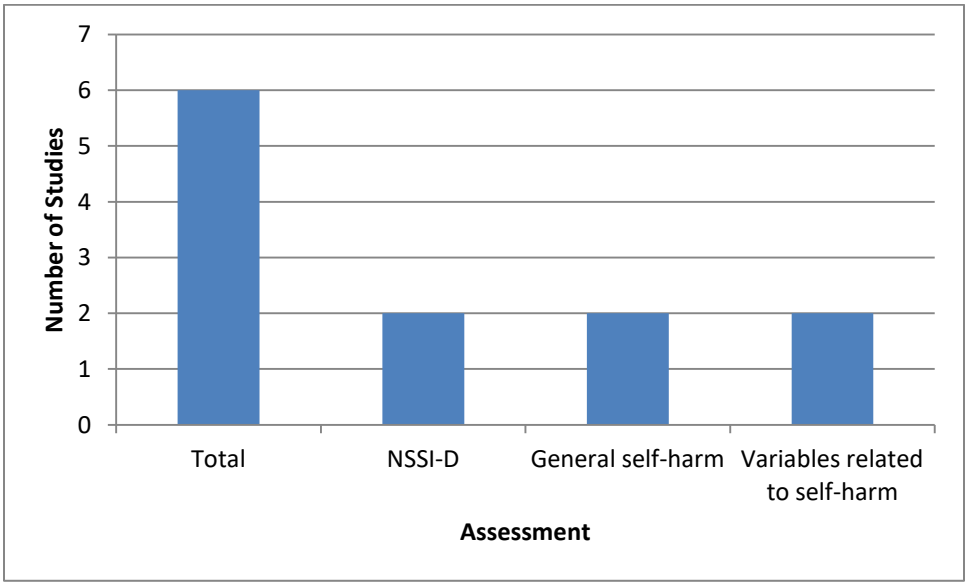


**Figure 15 - Studies that found resulted related to assessment**

**Non-suicidal self-injury disorder.** Two studies looked at assessing for NSSI-D (Ammerman et al., 2017; Andover, 2014). Ammerman and colleagues (2017) found that the optimal cut off for NSSI-D was six or more time per year instead of the proposed cut off of five

or more in the Diagnostic Statistical Manual 5 (DSM-5). Andover (2014) looked at the different criteria proposed by the DSM-5 for NSSI-D. These criteria were labelled A, B, C, D, E, and F. Criteria A consists of "intentional self-inflicted injury performed with the expectation of physical harm, but without suicidal intent, on five or more days in the past year" (Andover, 2014, p. 2). Criteria B indicates that the self-harm behaviour is performed to either relieve negative thoughts or feelings, resolve interpersonal problems, or to cause positive feelings or emotions (Andover, 2014). Criteria C requires the self-harm behaviour be associated with negative feelings or thoughts or interpersonal issues that occur immediately before engagement in self-harm, preoccupation with self-harm that is hard to resist, or a frequent urge to engage in self-harm (Andover, 2014). The self-harm behaviour must not be socially sanctioned and be more severe than picking a scab or nail biting is what makes up Criteria D (Andover, 2014). Criteria E states that the self-harm must cause distress or impairment that is deemed clinically significant (Andover, 2014). Criteria F indicates that the self-harming is not better accounted for by another mental disorder (Andover, 2014). The results of the study found that those who met the criteria for NSSI-D excluding criterion D and F had higher severity compared to those who did not meet the criteria and therefore giving support to the criteria A, B, C, and E for assessing for NSSI-D (Andover, 2014).

**General self-harm.** Two studies looked at different ways of assessing for the presence of self-harm (Glenn et al., 2017; Robinson & Wilson, 2020). The study done by Robinson and Wilson (2020) looked at discrepant reporting of self-harm based on which tool is used to assess for self-harm. Findings indicate that individual were 1.57 times more likely to report self-harm when being assessed with a behavioural checklist as opposed to a single-item measure. These results were not accounted for by assessment order or careless responding. However, those who reported discrepant results were more likely to not fit the stereotype of self-harm such as self-harming in a form other than cutting and in some cases being a man and therefore might be less likely to self-identify as someone who self-harms. These results indicate that using a single item or a two-step procedure to assess for self-harm might miss certain groups while using a behavioural checklist is more likely to get a holistic picture (Robinson & Wilson, 2020). In the study done by Glenn and colleagues (2017) the implicit association test for self-injury was able to distinguish those who engage in self-harm from those who do not as well as those who had more severe and frequent self-harming behaviours.

**Variables related to self-harm**. Two studies looked at assessment tools for different variables related to self-harm (Jenkins et al., 2013; Tonta et al., 2020). Tonta and colleagues (2020) found that the ruminative thought style questionnaire (RTSQ) was the most reliable tool for measuring differences in rumination relation to self-harm compared to the ruminative responses scale (RRS) and the repetitive thinking questionnaire (RTQ). The study done by Jenkins and colleagues (2013) found that none of the measures of the behavioural inhibition system (BIS) and behavioural activation system (BAS) were uniquely associated with self-harm, this may be due to there being different aspects of each system that relate to self-harm in different ways and by combining them into one measure the relationship becomes unclear.

## Treatment

When it comes to getting treatment although those who self-harm are more likely than the general public to receive pharmacological treatment, it is still a minority that does (Gollust et al., 2008). As for rates of seeing mental health professionals, there is a lot of variance with one study citing 19.9% do (Gollust et al., 2008), while another cited 61.1% (Gelinas & Wright, 2013). Regardless, seeing a general health professional is still more likely than seeing a mental health professional for those who self-harm (Gollust et al., 2008). Even though one study found 50.9% of individuals perceived a need for help (Gollust et al., 2008) it is shown that only 20% (Williams et al., 2018) to 25.7% (Gelinas & Wright, 2013) viewed counselling as a strategy to stop self-harm. Several specific treatment strategies were looked at in the research as well as some findings about treatment in general, informal treatment through social support, and unhelpful approaches to treatment. Specific treatments included a treatment designed specifically for self-harm (T-SIB), first aid guidelines for self-harm, emotion-focused treatment, stages of change, and different writing treatments (See Figures 16 and 17).

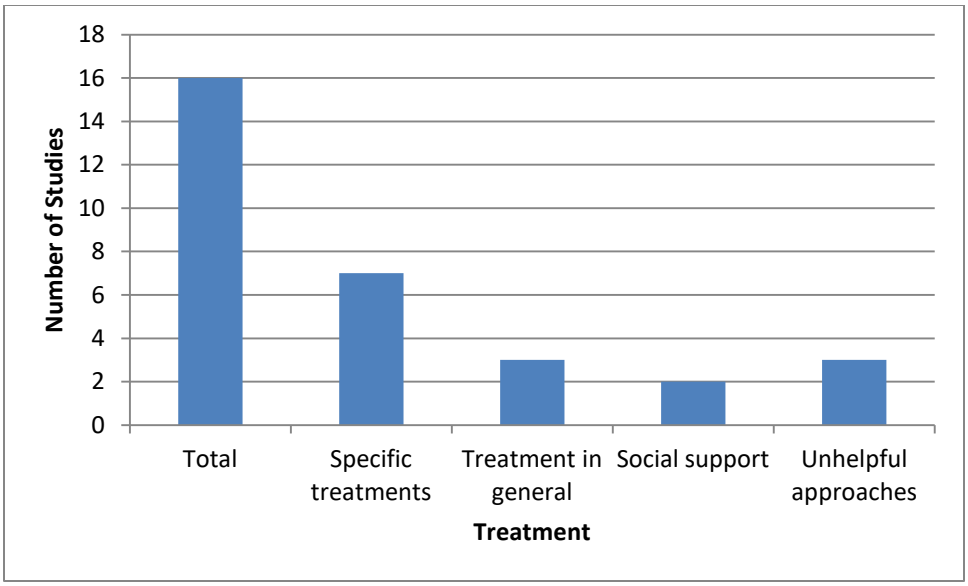


**Figure 16 - Studies that found treatment results**

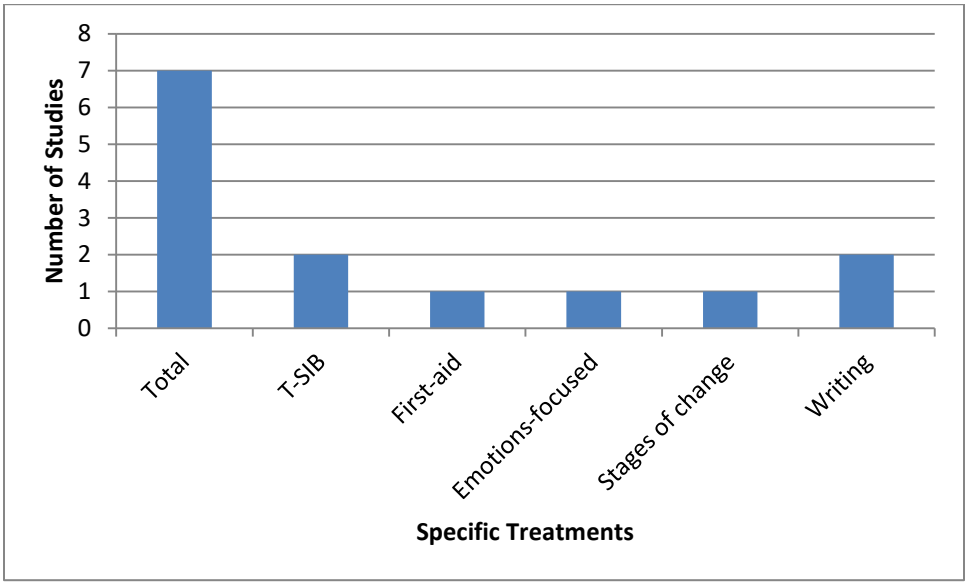


**Figure 17 - Studies that found results on specific treatments**

**T-SIB.** In a randomized control trial conducted by Andover and colleagues (2017) found that T-SIB to be more effective than the treatment as usual (TAU). The T-SIB consisted of a brief behavioural intervention designed specifically for treating self-harm in young adults and consisted of nine hour long weekly individual sessions with specific goals for each session. The TAU condition consisted of providing individuals with a list of mental health resources found in the community and providing assistance for finding a provider and scheduling the intake appointment. Although these differences were not apparent at first starting at the sixth week of

treatment a medium effect size in favour of the T-SIB started to emerge and continued at the three month follow up. In a follow up study done by Andover and colleagues (2020) it was found that these treatment outcomes were not influenced by age, ethnicity, race, gender, or psychological variables. Additionally, it was found that the largest improvements were found in those with high baseline of self-harm indicated that this might be a feasible treatment for more severe self-harming behaviour (Andover et al., 2020).

**First aid guidelines.** Kelly and colleagues (2008) put together first aid guidelines with the help of mental health professionals, past self-harmers, and carers of those who self-harm. The guidelines are comprised of five different sections (Kelly et al., 2008). The first section advises on what to do when approaching an individual that is currently in the act of self-harming emphasizing to intervene in a supportive non-judgemental way (Kelly et al., 2008). The second section talks about how to approach someone suspected of self-harming once again emphasizing remaining calm and not taking a punitive stance (Kelly et al., 2008). The third section looks ad how to avoid future self-harm by encouraging the person engaging in self-harm to reach out the next time they feel the urge to self-harm (Kelly et al., 2008). The fourth section takes a look at harm reduction such as encouraging the cleaning of wounds (Kelly et al., 2008). The fifth section talks about encouraging the self-harmer to seek professional help (Kelly et al., 2008).

**Emotion-focused treatment.** Two different forms of emotion-focused treatments that consisted of four weekly sessions were studied (Bentley et al., 2017). The two forms comprised of mindful emotion awareness and cognitive reappraisal (Bentley et al., 2017). A total of six out of ten showed clinically significant reductions in self-harm after receiving only one intervention with an additional two showed improvements after receiving both (Bentley et al., 2017). An equal number of participants in each treatment displayed improvements with no apparent differences in terms of magnitude and speed of change between the two interventions (Bentley et al., 2017). Of the two that did not show improvements there was noticeably higher severity in their self-harming behaviours indicating that these low intensity interventions may not be suitable for more severe self-harm (Bentley et al., 2017).

**Stages of change.** Kruzan and colleagues (2020) found that using the stages of change model can be useful in treating individuals with self-harm in order to see where they are at in the change process. The non-suicidal self-injury trans-theoretical model of change (NSSI-TTM) scales comprised of measures to assess processes of change, decisional balance, and self-efficacy

related to changing self-harm behaviour were found to be effective in determining where an individual falls in the stages of change with regards to self-harm (Kruzan et al., 2020).

**Writing.** Two different approaches to writing as a form of treating self-harm were explored consisting of creative writing (Gilzean, 2011) and journaling (Hooley et al., 2018). Creative writing was shown to effective in helping one adopt a new coping strategy, communicate with oneself to help promote reflection and learning about oneself, and communicate with others (Gilzean, 2011). A study by Hooley and colleagues (2018) three different approaches to journaling were analysed for effectiveness in treating self-harm. These journaling strategies consisted of autobiographical self-enhancement training (ASET), expressive writing (EW), and a regular journaling control group (Hooley et al., 2018). All three approaches showed improvements in the reduction of self-harm with the ASET condition showing more improvements (Hooley et al., 2018). However, the ASET approach was also seen to be the least enjoyable with the EW treatment being the most enjoyable (Hooley et al., 2018). This might mean it may be important to consider how resistant to treatment a patient is and give them one of the conditions accordingly even though the ASET showed the most improvements (Hooley et al., 2018). Given that all of the treatments in the study were conducted online there is support for self-harm treatments being acceptable as online interventions (Hooley et al., 2018).

**Treatment in general.** In terms of treatment Long and colleagues (2016) highlight the ultimate goal of counselling is to help the client integrate their experiences by helping them develop the ability to find meaning from their experiences that influenced them starting and maintaining self-harming behaviours. Also, the importance of building a trusting and accepting therapeutic relationship with a client to provide them human connection was also emphasized (Long et al., 2016). In addition to the importance of the therapeutic relationship a couple of studies looked at coping as general ways to help treat self-harm (Gelinas & Wright, 2013; Gilzean, 2011). Positive coping behaviours were shown to be useful strategies to stop self-harm (Gelinas & Wright, 2013; Gilzean, 2011) as well as positive self-talk (Gelinas & Wright, 2013). However, negative coping strategies such as doing drugs have also been shown to be used to help stop self-harm (Gelinas & Wright, 2013). Therefore, treatment providers need to be vigilant that a client is not trading one harmful behaviour for another (Gelinas & Wright, 2013).

**Social support.** Informal social support is also an important tool to help treat self-harm with Gelinas and Wright (2013) finding 17.1% of those who self-harm using social support from

friends and family as a strategy to stopping self-harm. Creative writing can be a useful tool in communicating with one's social support group as the writer can be as open as they wish and provides the reader time to reflect on what is being communicated to them (Gilzean, 2011).

**Unhelpful approaches to treatment.** Across several studies it was emphasized that focusing on stopping the self-harming behaviour is not an effective way to treat self-harm and instead it is important to see beyond the behaviour (Kelly et al., 2008; Long et al., 2016; Warm et al., 2003). Additionally, Warm and colleagues (2003) found that the majority of individuals who self-harm disagree with the notion that those who self-harm should be kept in psychiatric hospitals.

## Prevention

Throughout the studies there were no specific strategies or programs stated for preventing self-harm. However, a variety of protective factors were found across studies that fall into the categories of interpersonal, coping, self-esteem, self-efficacy, beliefs, and other protective factors (see Figure 18).

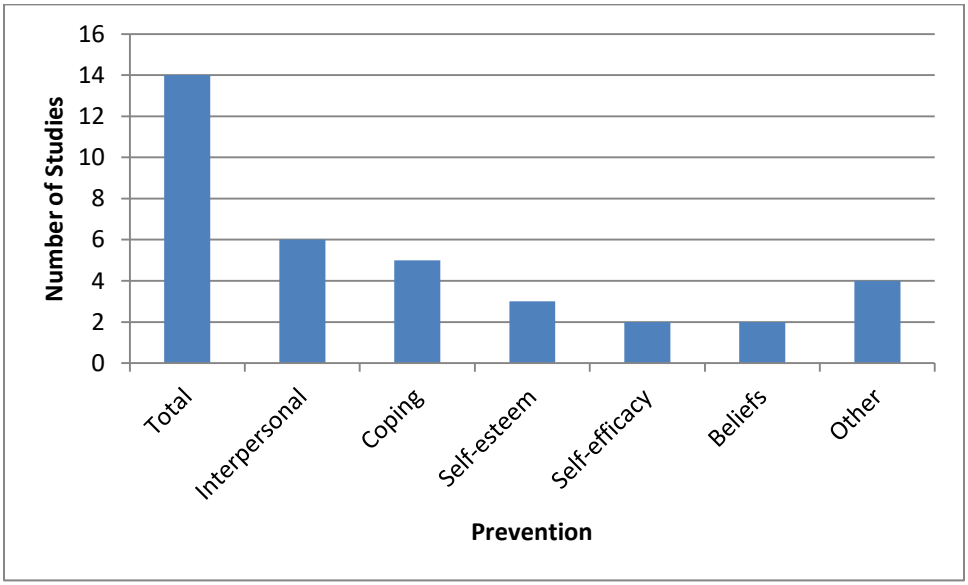


**Figure 18 - Studies that found results on prevention of self-harm**

**Interpersonal.** Across multiple studies different interpersonal factors were shown to help protect against self-harm (Alexander & Clare, 2004; Davey et al., 2016; Gelinas & Wright, 2013; Kiekens et al., 2017; Smith & Perrin, 2017; Williams et al., 2018). Having a strong social support system was the most common protective interpersonal factor being found in five different studies (Alexander & Clare, 2004; Davey et al., 2016; Gelinas & Wright, 2013; Kiekens

et al., 2017; Williams et al., 2018). Other interpersonal protective factors included counselling (Williams et al., 2018), a supportive environment (Smith & Perrin, 2017), and upsetting situations (Gelinas & Wright, 2013). In a study done by Williams and colleagues (2018) 20% of individuals listed counselling as an alternative to help prevent self-harm. In terms of supportive environment Smith and Perrin (2017) found that sexual minority individuals that experienced less harassment, rejection, or other forms of heterosexism in work or school indicated less past year self-harm. The upsetting situations highlighted by Gelinas and Wright (2013) consisted of negative attention caused by scars, disappointing or hurting family, and threats from significant others. Although these upsetting situations might be seen as negative experiences, they can help motivate an individual to cease engagement in self-harm in order to avoid these situations in the future and therefore be protective against further self-harm behaviour. Also, a study done by Gollust and colleagues (2008) found that individuals who self-harm are much more likely to see a general health professional than a mental health professional. With this is mind general health professionals might be an individual's first contact and therefore training them on now to identify and address self-harm may be beneficial in preventing future self-harm in the population (Gollust et al., 2008).

**Coping.** Coping was the second most common category of protective factors found in studies (Andover, 2014; Dawkins et al., 2019; Gelinas & Wright, 2013; Polanco-Roman et al., 2015; Williams et al., 2018). Different protective factors associated with coping included distraction strategies (Polanco-Roman et al., 2015; Williams et al., 2018), problem solving strategies (Andover, 2014), finding alternative coping strategies (Gelinas & Wright, 2013), and emotion suppression (Dawkins et al., 2019). Potential distraction strategies included in research were exercising, listening to music, ripping sheets of paper, cooking, and positive thoughts (Polanco-Roman et al., 2015; Williams et al., 2018). In terms of emotion suppression Dawkins and colleagues (2019) found that high levels of suppression might be protective against high levels of emotional reactivity which in turn reduces self-harm.

**Self-esteem.** A total of three studies found self-esteem to be protective against self-harm (Cerutti et al., 2012; Davey et al., 2016; Dickey et al., 2015). Davey and colleagues (2016) found general self-esteem to be related to lower rates of self-harm. Satisfaction with one's body was the most common self-esteem protective factor (Cerutti et al., 2012; Davey et al., 2016; Dickey et al., 2015) followed by body protection (Cerutti et al., 2012; Dickey et al., 2015) resulting in a

general higher amount of investment in one's body as protective against self-harm (Dickey et al., 2015). Body protection refers to an individual's perceptions of their body and the tendency to either protect or cause destruction to their body (Cerutti et al., 2012).

**Self-efficacy.** Self-efficacy as a protective factor against self-harm was found in two studies (Dawkins et al., 2019; Kiekens et al., 2017). In the study done by Dawkins and colleagues (2019) a strong belief in one's ability to resist the urge to self-harm was found to be protective against engaging in self-harm. On the other hand, Kiekens and colleagues (2017) found that one's belief in their ability to regulate their emotions was protective against self-harm.

**Beliefs.** A few different beliefs were found to be protective against self-harm (Bachtelle & Pepper, 2015; Gelinas & Wright, 2013). Coming to believe that self-harm is stupid and futile was found to be a relatively common reason for stopping self-harm (Gelinas & Wright, 2013). Also, having growth interpretations of self-harm scars was found to be associated with a lower likelihood of engaging in self-harm in the future and overall, less distress (Bachtelle & Pepper, 2015). Growth interpretations of self-harm scars include but are not limited to finding the scar to be a reminder of overcoming adversity, loved one, or strength (Bachtelle & Pepper, 2015). Finally, believing in the importance and having a desire for wellness was found to be a factor related to stopping engaging in self-harm (Gelinas & Wright, 2013).

**Other protective factors.** In addition to the protective factors already listed a couple of other factors were found that did not fit into a specific category. These other factors consisted of life satisfaction, the behavioural activation and inhibition systems, and religion. General satisfaction with life was associated with ceased self-harm (Kiekens et al., 2017) and negatively associated with lifetime self-harm (Smith & Perrin, 2017). Jenkins and colleagues (2013) found that although the behavioural activation system (BAS) and behavioural inhibition system (BIS) may independently be associated with an increased risk of self-harm together they may be protective against self-harm. A more active BAS may protect against a more active BIS and vice versa resulting in a lower likelihood of engaging in self-harm (Jenkins et al., 2013). Additionally, having both low BAS and BIS was also seen as protective against self-harm (Jenkins et al., 2013). In the study done by Kuentzel and colleagues (2012) having a strong religious belief was associated with a lower likelihood to engage in self-harm compared to those with very weak and fairly weak religious beliefs.

## Comparison of Adult Self-Harm to Adolescent Self-Harm

The studies from both reviews utilized mostly school samples. The lifetime prevalence rate was found to be higher in the adult review as to be expected as it can only increase with age. When looking at past year self-harm the rates are quite similar, even when controlling for the potential outlier in the adult sample, changing the average from 25.17% to 18.39%, it is still very close to the average from the adolescent review 20.5%. The similarities in the past year prevalence give support to the notion that self-harm is not exclusively an adolescent problem.

### Demographics

**Similarities.** In terms of demographics there were several similarities. First, both the adolescent and adult review found those who were transgender to have increased rates of self-harm. Second, both showed that the existence of relationship between self-harm and age is not clear. Third, sexual minority individuals were both found to be vulnerable to self-harm. Fourth, both reviews had mixed results in terms of race. In both reviews, studies found White individuals to be at increased risk but this could be in part due to samples not being diverse enough to differentiate racial groups other than White and non-White. When able to differentiate racial groups, both reviews found Native American and Hispanic individuals be at increased risk along with White, while Black and Asian individuals have a lower risk. Fourth, when looking at race with gender both reviews found Black females to be particularly resilient while Black males might not have quite as low a risk of self-harm. Fifth, in terms of education both reviews showed support for the theory that the transition between a new school environment might increase the risk of self-harm as the adolescent review showed higher rates among high school students and the adult review found freshmen to be a particularly vulnerable group.

**Differences.** In spite of all of the similarities between the demographic results of the two reviews some differences emerged. First, while the adult review found predominately no gender differences between male and female rates of self-harm, the adolescent review found more evidence for females having a higher prevalence. Second, when looking at race, the adult review found that multiracial individuals are at increased risk and Middle Eastern individuals have a lower risk. Third, although the adult review found homeless young adults might be a particular at-risk group for self-harm, the majority of studies did not find a relationship between socio-economic status and self-harm, while the adolescent review found low socio-economic status to be related to increased self-harm rates. Fourth, the adolescent review found additional risk

groups to mostly be related to family, while the adult review found romantic relationship status and religion to be associated with self-harm prevalence.

### Risk Factors

**Similarities.** When comparing the results on risk factors in the adult and adolescent reviews several similarities emerge. First, issues around mental illness are the most prevalent risk factors for both reviews. Second, both reviews found depression to be the most common psychological disorder to be a risk factor for self-harm. Third, emotions were cited as risk factors third most frequently in both reviews. Fourth, emotional pain, fear, sadness, shame, and anger were all emotions found to be risk factors in both reviews. Fifth, risky behaviours were the sixth most common risk factors in both reviews. Sixth, impulsiveness, neuroticism, and openness to experiences were all personality risk factors found in both reviews. Seventh, traumatic experiences were found to be prevalent risk factors for both reviews. Eighth, self-harm behaviours themselves were the least common risk factors found in studies in both reviews.

**Differences.** While there are several similarities in risk factors for the adolescent and adult reviews some differences are still apparent. First, the second most prevalent group of risk factors for the adult review were emotion regulation difficulties, while this was only the fifth most prevalent risk factor for the adolescent review. Second, interpersonal risk factors were the second most prevalent category in the adolescent review, while they were only fifth in the adult review. Third, the risk factors in the adolescent review had a focus on family and peer interactions, while the adult review saw a shift to romantic relationships and friendships becoming bigger focal points. Fourth, self-esteem was the third most commonly cited risk factor in the adult review, while in the adolescent review it was second last. Fifth, although both reviews found risky behaviours to be equally common risk factors, the adolescent review found support for alcohol being a risk factor, while in the adult review, it was less clear. Sixth, the adult review found risk factors around stress and biological issues, while the adolescent review did not. Seventh, the issues around identity formation were found to be risk factors for self-harm in adolescence but not in adulthood possibly because identity formation is an important aspect of adolescence and less so for adults as most of the process has already happened. Eighth, issues around menstruation were found to be risk factors for adolescent self-harm, but not adult possibly because an individual in adulthood may have adapted to changes cause by menstruation and adults no longer find them as distressing as adolescents first facing this change.

## Motivators

**Similarities.** A few similarities in the motivators for self-harm were found in the two reviews. First, both reviews found intrapersonal motives to be more common than interpersonal. Second, the specific intrapersonal motives of emotion regulation, self-punishment, sensation-seeking, anti-dissociation, and addiction were found in both reviews. Third, the interpersonal motive of communication was found in both reviews.

**Differences.** In terms of motives of self-harm several differences were found across the two reviews. First, the adult review found the intrapersonal factors of identity and prevention of suicide to be motives of self-harm, while the adolescent review did not. Second, the adolescent review found individuals engage in self-harm to feel they belong or to avoid people, this was not echoed in the adult review. Third, attention seeking, influencing others, and resolving interpersonal issues were motives endorsed in studies from the adult review that were not found in the adolescent review. Fourth, the adolescent review found males to be more likely to have the motive of anti-dissociation and females to have addiction as a motive while gender differences were not found in the adult review.

## Techniques

**Similarities.** The adult and adolescents' reviews had some similar results on the techniques of self-harm. First, both studies found that the majority of individuals use multiple methods to self-harm. Second, individuals tended to harm locations on the body that could be concealed were common findings from both reviews. Third, common locations to harm were arms, legs, hands, feet, fingers, toes, and nails in both reviews. Fourth, both reviews found cutting to be the most common method of self-harm followed by punching, hitting, and banging. Fifth, females were more likely to engage in cutting, while males were more likely to use hitting, banging, or punching as methods of self-harm in both review. Sixth, similar although not identical results were found for Black individuals where the adult review found them to be less likely to engage in hitting while the adolescent review found Black males to be more likely to engage in cutting.

**Differences.** Although there were several similarities between the two reviews some differences were found in the results of the techniques for self-harm. First, although both reviews found that the majority of individuals use multiple methods the range of methods and average number of methods was much higher for the adult review. Second, the belly, torso, and buttocks

being body parts to harm were only found in the adult review. Third, the least commonly endorsed method of self-harm was sticking self with sharp objects for the adult review while in the adolescent review it was burning. Fourth, females were more likely to engage in wound interference while males were more likely to engage in carving in the adult review but this was not the case for the adolescent review. Fifth, according to the adult review sexual minority individuals are more likely to engage in scratching while heterosexual individuals are more likely to use burning while no differences according to sexual orientation were found in the adolescent review. Sixth, the adolescent review found that females are more likely to harm their forearms and wrists but this difference was not found in the adult review. Seventh, the adult review found practice patterns for self-harm while the adolescent review did not. Eighth, the adolescent review found specific tools such as erasers, pins, cigarettes, candles, lighters, scissors, blades, and glass or mirrors being used to self-harm while the adult review did not.

### Social Contagion

**Similarities.** When comparing the social contagion results of the two reviews two similarities can be found. First, having a friend that self-harms was seen to be a risk factor for self-harm in both reviews. Second, both reviews found peer pressure to be a factor for continuing to self-harm.

**Differences.** A few differences emerged when looking at the two reviews. First, while the adolescent review found little evidence of friends having a direct influence through encouragement, suggesting, or assisting with self-harm, the adult review found that a significant number of individuals learnt self-harm from a friend or family member. Second, the adolescent review found media has an impact on self-harm while the adult review did not find any studies related to media exposure. Third, the adolescent review found specific clique identities to have a relationship to self-harm while no studies in the adult review had any findings about clique identity possibly because cliques become less apparent past adolescence.

### Assessment

**Similarities.** The adult and adolescent reviews found some similarities when looking as assessment tools for self-harm. First, when assessing for non-suicidal self-injury disorder (NSSI-D) both found that the criteria assessing distress or impairment to be important in distinguishing out a significantly more severe group. Second, both reviews found support for using the implicit

association test for self-harm to distinguish those who self-harm from those who do not and those with more severe self-harm. Third, both reviews found that varying rates of self-harm emerge depending on what measuring tool is utilized.

**Differences.** When comparing the two reviews two differences emerged. First, in the adult review, studies looked at the effectiveness of certain tools to measure risk factors for self-harm, while the adolescent review did not have such findings. Second, the adolescent review presented findings about identifying self-harm through the self-harmer disclosing the behaviour to trusted individuals or counsellors noticing the signs themselves.

**Treatment**

**Similarities.** Certain aspects to treating self-harm were found across both reviews. First, both studies found similar rates in individuals seeking help for self-harm. Second, both reviews found the therapeutic relationship to be a crucial component to treating self-harm. Third, coping strategies to help with self-harm reduction were found in both reviews. Fourth, creative writing was a specific strategy found in both studies. Fifth, both reviews found support for treatments helping with emotion regulation in treating self-harm. Sixth, both reviews found support for informal help by reaching out to a social support network. Seventh, journaling was shown to be an effective treatment strategy in both reviews.

**Differences.** Although there were commonalities between the treatment approaches found in both reviews, differences were also found. First, the adolescent review found including family in the treatment process to be important, while the adult review did not. Second, the adolescent review highlighted dialectic behavioural therapy (DBT) as a leading treatment for treating self-harm. Third, the adult review found support for utilizing the stages of change in treating individuals with self-harm, which may be too complex to use with adolescents. Fourth, the adolescent review found support for an emotion regulation therapy program specifically designed for adolescents that include working with family while the adult review found support for a low intensity emotion focused therapy designed for adults. Fifth, the adult review found a first aid program for self-harm that was created by and for adults that might not be efficacious to be used with adolescents. Sixth, the adult review emphasized the importance of the therapist not focusing on stopping the self-harming behaviour and instead seeing beyond it, this was not echoed in the adolescent review. Seventh, the adult review found efficacy for a treatment

specifically designed to treat self-harm while no treatment designed specifically for self-harm was found in the adolescent review.

### Prevention

**Similarities.** Upon analyzing results on the prevention of self-harm two protective factors were found in both reviews. First, interpersonal factors were the most common protective factors in both reviews. Second, coping was found to be an important protective factor in both reviews.

**Differences.** Across the two reviews, prevention results several differences emerged. First, the adolescent review found a specific prevention program for self-harm to be utilized in schools, while the adult review did not have any specific program. Second, although both reviews found social support to be the most common protective factor, the adolescent review found more focus on family while the adult was social support in general. Third, the adolescent review found specific protective factors around school, while the adult did not possibly because schooling is less of a focal point of adulthood and even in college the school environment is a lot less structured than high school. Fourth, the adult review found aspects of self-efficacy and self-esteem to be important protective factors while the adolescent review did not. Fifth, the adolescent review found aspects around health development to be important protective factors, while in adulthood identity formation is not as prevalent of an issue so it understandably was not present in the adult review. Sixth, the adolescent review showed findings about possible taste in music being a protective factor that was not replicated in the adult review. Seventh, changes in personal beliefs were found to be protective in the adult review but not found in the adolescent. Eighth, the adult review highlighted that individuals are more likely to see a general health professional leading to the possibility of training general practitioners about self-harm to help with identifying and prevention future self-harm in clients, this finding was not shown in the adolescent review.

## Additional Analysis: Impact of Technology on Self-Harm

With the increasing advances in technology some studies have noted the impact it has had on self-harm (Çimen et al., 2017; Hilton, 2017; Hooley et al., 2018; Jantzer et al., 2015; Jarvi et al., 2017; Li et al., 2019; Monto et al., 2018; Moreno et al., 2016; Wilkinson, 2011). Given the limited number of studies found that address this specific topic the results of both the adult and

adolescent reviews are combined in addition to studies that were not included in the review as they did not fit into one age demographic.

**Problems of increased technology.** In the review done by Wilkinson (2011) it was found that increased media on self-harm has potentially resulted in an increase in the prevalence of self-harm. Further support has been found for this finding in a study that showed increased exposure to self-harm content on the internet and television to be related to an increased risk of self-harm (Çimen et al., 2017). This is possibly because with the open dialogue and content comes a potential to normalize self-harm causing beliefs around self-harm to be perpetuated with the result of increasing self-harm behaviours (Hilton, 2017). In addition to increased exposure to self-harm content with the rise of technology other aspects around technology have been found to be related to self-harm, such as general increased time on the internet (Çimen et al., 2017), and problematic mobile phone use (Li et al., 2019). Also, with the increase in technology comes the potential for cyberbullying, which has been found to be a risk factor for self-harm (Jantzer et al., 2015; Monto et al., 2018). Given that social media sites like Twitter are assessable to anyone means that users who self-harm are vulnerable to ridicule that can hinder their recovery (Hilton, 2017).

**Benefits of increased technology.** Although the increase in technology can have a negative impact on self-harm there is also the potential for positive impacts. Support has been found for utilizing online interventions for treating self-harm which has the potential to provide treatment for those who may otherwise not have access (Hooley et al., 2018). Also, social media platforms like Twitter can be a way for people to obtain social support from those that are not physically close to them and the unique access to celebrities it provides may help in the healing process as the celebrities share their stories of healing (Hilton, 2017).

**Mixed effect of technology.** In order to get a deeper understanding of how technology and specifically social networking sites is related to self-harm, Jarvi and colleagues (2017) looked at difference in use and motivation between those who engage in self-harm and those who do not. No differences in motivation or use of social networking cites emerged indicating that risky social networking site use and motivation might not be person centered and instead, a focus should be shifted to overseeing, regulating, and modifying content (Jarvi et al., 2017). Evidence shows that current advisory warnings and redirecting of content are not effective as social media sites such as Instagram were only found to produce warnings and redirect self-harm

hash tags to resources on a limited number of hash tags and when done the resources provided were for eating disorders (Moreno et al., 2016). Part of this is due to users using ambiguous hash tag terms such as ‘cat’ to refer to ‘cutting’ where only those who engage in the behaviour will know the relationship between these words and avoid recognition by those who are not part of the community (Moreno et al., 2016). This use of ambiguous terms also means individuals might access self-harm content by accident (Moreno et al., 2016). With the seen growth in use of self-harm hash tags come both the benefits of creating a sense of community and social support while also potentially triggering individuals and providing easy access to instruction on how to self-harm (Moreno et al., 2016).

## Conclusion

To conclude, the reviews conducted found several findings about self-harm in adulthood in relation to adolescence. First, self-harm is still a prevalent issue in adulthood as shown by the relatively similar prevalence rates from both reviews. Second, some aspects of self-harm seem to transcend age, such as the relationship between self-harm and depression. Third, with age come changes such as the move away from family being the largest interpersonal relation in one’s life and moving towards friends and romantic partners and the formation of identity no longer being as prevalent of an issue. With these natural changes that come with age come different priorities and stressors for individuals. Given these age-related shifts, if the conceptualization and treatment for self-harm in adolescents is simply transferred to adult populations, there might be missing important factors that are influencing the self-harming behaviour while focusing on issues that are no longer relevant for the individual. Fourth, with the increasing prevalence of technology in our society comes the potential for both benefits and problems. It might be more beneficial to look at technology on a larger scale than individual by looking at what content is being presented and what advisories and redirects are being put in place.

# CHAPTER 4

# DISCUSSION

This chapter will consist of a summary of the findings from the different reviews in connection to the research questions and a discussion on the connection to the theoretical framework utilized in analysis. Finally, implications for future research and mental health practitioners will be discussed.

## Summary

The purpose of this integrative review was to create a more holistic picture on self-harm in adult populations and see if it is qualitatively different from adolescent self-harm. A follow up purpose of the review was to determine what impact the increasing prevalence of technology has had on self-harm. Through the reviews a total of sixty-seven studies were included in the adult review, seventy-seven in the adolescent review with thirty-six studies in the original and forty-one studies found in this update, and two additional studies in the analysis on technology. Given the prevalence rates found in the adult review, it is clear that self-harm is not solely an adolescent problem. Additionally, given the high rates of self-harm found in both college and high school populations in the two reviews, leads to the theory that change in schooling environment and the stress that goes a long with it might lead to issues around self-harm when other coping strategies are not available. This would indicate that this stressful situation is not age dependent, but happens to be more prevalent in adolescence hence why it is seen as an adolescent issue. Many of the differences found between the adult and adolescent review are similar to differences found when comparing these age groups in general, such as the shift away from family being the more integral relationship to friends and romantic partners and identity development no longer big a focal point as it has been achieved by the majority of individuals at this point in life. On the other hand, the similarities found between the two reviews are ones that appear to be fairly stable throughout life, such as depression. Some demographic groups were found to be at risk for self-harm in both reviews, including sexual minority individuals, transgender, and certain racial minorities, such as Native American and Hispanic. This could be partly due to the stress that comes with racism. However, social stress cannot account for all of the differences in demographic groups as some racial minorities appeared to actually be protective against self-

harm. In addition to these factors, the increase of technology in society can pose additional issues for self-harm through normalization and cyberbullying. However, technology can also be utilized as a positive tool through fostering a sense of community for individuals and providing access to treatment. What is important is to regulate what content is easily available for individuals and ensuring proper content warnings and redirecting to resources is provided.

## Theoretical Framework

The coping circumplex model put forward by Krzysztof Stanisławski (2019) can be used to interpret the findings from the review in relation to self-harm and coping. Given the relationship between self-harm and emotion regulation difficulties, such as rumination, self-criticism, and avoidance, it can be understood that those who self-harm tend to fall under the coping categories of negative emotional coping, problem avoidance, and helplessness. Further, given that self-harm appears to be motivated by emotion regulation and self-punishment shows that the act itself functions as a form of coping. Self-harm has been shown to bring a sense of relief after emotional distress and therefore can be seen as negative emotional coping. In some cases, self-harm was also shown to be a way to avoid certain problems the individual was dealing with and would be considered problem avoidance. When these two functions come together it would make self-harm a form of helplessness as it is both negative emotion and problem coping styles. By being able to pinpoint which facet of coping the individual is using self-harm for out of the three it can better help practitioners help the individual by targeting the specific maladaptive coping process.

## Limitations

Given that this study is an integrative review it is limited to what past research has been done on the topic such as what populations and variables the studies decided to look at. Also, research that is in progress at the time of the integrative review will be missed as it will not have been published yet. Finally, research that is not originally in English or translated to English will be missed.

## Implications

The results of this review have several implications for future research and mental health practitioners. First, the implications for future research will be presented. Second, the implications for mental health practitioners will be discussed.

**Implications for future research.** The results of this review provide several different directions for future research. First, future research can look at directly assessing the factors that were found to be differences for adolescent and adult self-harm to see if these differences are present or if past research has only looked at these factors in one population and not the other. Second, longitudinal studies that look at self-harm in adolescence moving into adulthood to see if there is a shift that comes with age in the factors that were found to be different between the two reviews. Third, conducting studies that utilize a behavioural checklist for self-harm, instead of single item or two step procedures, in order to get a more holistic view on self-harm. Fourth, conducting studies that look at the at risk and resilient demographic groups to get an understanding as to what makes a demographic group at risk or resilient as a social stress theory cannot explain all of it. Fifth, studies can be designed to address some of the contradictory results, such as alcohol being a risk factor for self-harm.

**Implications for health care practitioners.** The results of the review have several implications for health care practitioners in terms of prevention and treatment. First, several at risk demographic groups were found in the reviews including, freshmen university studies, sexual minority, and transgender individuals. Programs can be utilized to provide extra support to these at-risk groups, such as presentations about the mental health resources available to students in first year courses and the creation of support groups for these vulnerable demographics. Second, with adulthood come different issues as the focus and therefore different prevention and treatment strategies should be utilized for working with this population instead of those used for adolescent populations. Third, practitioners should be mindful of any stereotypes they may hold and work on creating a strong therapeutic relationship with the client that can see beyond the self-harming behaviour.

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# Appendices

## Appendix A: Definitions of Terms

*Coping* – "Both volitional and automatized, cognitive, emotional, and behavioral responses to stress" (Stanisławski, 2019, p. 4).

*Coping Mode* – Set of coping strategies, which include very similar cognitive, emotional and/or behavioral responses to stress, but are associated with different functions" (Stanisławski, 2019, p. 6).

*Coping Process* – "A sequence of strategies changing over time, related to the changes in the characteristics of the situation and changes in the psychophysical state of the individual" (Wrzesniewski, 2000, p. 47).

*Coping Strategy* – "Cognitive, emotional and/or behavioral response to stress associated with a particular function, e.g., calming down or solving the problem" (Stanisławski, 2019, p. 6).

*Coping Style* – "Set of coping strategies which fulfills a specific function and is relatively stable over time as well as across a range of circumstance" (Stanisławski, 2019, p. 6).

*Efficiency* – "The acknowledgement of thoughts and feelings associated with the stressor, using cognitive transformations that enable finding new avenues of solving the problem and the elicitation of positive emotions as well as positive expectations about the possibility of solving the problem" and "taking action to solve the problem" (Stanisławski, 2019, p. 10).

*Emotion Coping* – "How the individual regulates one's emotions under stress" (Stanisławski, 2019, p. 5).

*Hedonic Disengagement* – "Avoidance of information on the problem and a strong tendency to maintain momentary wellbeing" (Stanisławski, 2019, p. 13).

*Helplessness* – "Not acknowledgement of the thoughts and feelings associated with the problem, using cognitive transformations, which elicits negative expectations as to the possibility of dealing with the problem as well as negative emotions" (Stanisławski, 2019, p. 10).

*Negative Emotional Coping* – "Self-criticism when dealing with problem, focusing attention on the negative aspects of stressful situation (e.g. rumination), and on negative emotions (e.g. feelings of tension, pressure, or anger)" (Stanisławski, 2019, p. 9).

*Positive Emotional Coping* – "Being kind and understanding to oneself as one tries to solve a problem on one's own regardless of success and the use of cognitive transformations that enable the elicitation of positive emotions and calming down" (Stanisławski, 2019, p. 9).

*Preoccupation with the Problem* – "High tendency to take action to solve the problem and a low tendency to maintain…momentary well-being" (Stanisławski, 2019, p. 12).

*Problem Avoidance* – "The avoidance of thinking about the problem (e.g. by engaging in substitute activities), reducing efforts to solve the problem, postponing tasks, or giving up attempts to attain goal" (Stanisławski, 2019, p. 8).

*Problem Coping* – "Whether the person solves the problem or avoids the problem" (Stanisławski, 2019, p. 5).

*Problem Solving* – "Active cognitive and behavioral efforts to deal with problem" and "consists of acknowledging various thoughts concerning the problem, undertaking efforts to understand the situation, predicting the course of events, choosing the most appropriate solutions, planning to solve the problem and implementing this plan as well as taking consistent action to solve the problem" (Stanisławski, 2019, p. 8).

*Self-Harm* – "the deliberate act of causing harm to oneself through cutting, burning, mutilating, rubbing or other methods of trauma in the body tissue, without the intent to commit suicide" (Nock & Prinstein, 2004; p. 120-121 Wilkinson, 2011).