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- Dr. Barbara Zagaglia, Associate Professor, Polytechnic University of Marche, Italy. (*Demography*)
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The ***Athens Journal of Social Science (AJSS)*** is an Open Access quarterly double-blind peer reviewed journal and considers papers from all areas of social sciences, including papers on sociology, psychology, politics, media, and economics. Many of the papers in this journal have been presented at the various conferences sponsored the [Social Sciences Division](#) of the Athens Institute. All papers are subject to Athens Institute's [Publication Ethical Policy and Statement](#).

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*The current issue is the fourth of the thirteenth volume of the **Athens Journal of Social Sciences (AJSS)**, published by the [Social Sciences Division](#) of Athens Institute.*

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Gregory T. Papanikos
President
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- Submission of Paper: **26 April 2027**

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Important Dates

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- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **5 April 2027**

Academic Member Responsible for the Conference

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Understanding Homicide Dynamics: The Role of Victim-Offender Relationships and the Event Circumstances across Demographic Groups

By Avdi S. Avdija*, Christian W. Gallagher[±], DeVere D. Woods Jr. •
& Arif Akgul[°]

This study investigates how the victim-offender relationship relates to the circumstances under which homicides occur, with the main focus on variations within gender, race, and age categories. To achieve these research objectives, we analyzed over forty years of data from the FBI's Supplementary Homicide Reports (1976–2017), reported by the U.S. law enforcement agencies. The findings that emerged in this study show that offenders are more likely to kill victims of the same gender when taking into account the victim-offender relationships. Furthermore, this study shows that black offenders are more likely to kill acquaintances and intimate partners whereas white offenders demonstrated a higher likelihood of committing homicide against family members. Notably, the critical age category for homicides that occurred between family members was 21 to 30.

Keywords: *Homicide, victim-offender relationship, homicide circumstances, gender, race, age.*

Introduction

Victim-offender relationships (VOR) are key factors in the formation of criminal investigative strategies and the effectiveness of investigations. Investigators' assessments of VOR may determine early investigative actions and the deployment of resources. For example, a crime scene that suggests the perpetrator was admitted into a home and stabbed the victim from behind with little struggle or defensive action may suggest to investigators a much different suspect than if the crime scene suggests the perpetrator broke into the home and stabbed a struggling victim who incurred several defensive wounds. An appreciation of VOR can help shape investigations and enhance our understanding of crime.

Since the 1990s, homicides in which the relationship between the victim and offender is unknown have become the largest category of cases in the United States. During this period, for cases where the relationship is known, 22% of victims were killed by strangers (Cooper & Smith, 2011). Additionally, there is a consensus that there is a strong link between intimate partner violence and

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homicide (Fox & Allen, 2014; Garcia et al., 2007). It is also commonly accepted that women are much more likely to kill an intimate partner than are male offenders (Jordan et al., 2012). Cooper and Smith's (2011) study suggests that among cases in which the relationship between the victims and offenders are known, the victim is more than twice as likely to be an acquaintance of the offender rather than an intimate partner. Homicides between acquaintances are also more likely to involve weapons than homicides between intimate partners and family members (Cooper & Smith, 2011). In more recent studies, it is suggested that the victim-offender relationship in domestic-related homicides also affect the media attention (Wong et al., 2021). Domestic-related homicides that involve family members or intimate partners, are often underreported in the media unless they involve extreme circumstances or public figures. These cases are often reported briefly, if at all, which can contribute to underrepresentation of certain types of violence in public discourse (Sorenson & Wilson, 2020; Avalos et al., 2024; Correia & Neves, 2024).

In the current study, we examine the circumstances under which homicides are most likely to occur, with a particular emphasis on the relationship between victims and offenders. We investigate how different types of relationships—such as intimate partners, family members, acquaintances, or strangers—shape the context and dynamics of fatal incidents. This includes exploring factors such as situational triggers that vary by relationship type. Additionally, we analyze how demographic characteristics of the offenders, including age, gender, and race, intersect with these relationships and circumstances, influencing both the likelihood and nature of homicide.

Homicide and Age

Age has been among the most widely studied variables for its influence upon crime rates, and there has been a longtime consensus amongst criminologists that a disproportionate number of crimes are committed by young offenders (Kanazawa, 2003; Brown & Males, 2011; Brame & Piquero, 2003; Cuervo, Villanueva, Gonzales, Carrion, & Busquets, 2015). In a study of homicide data for the United States from 1990-2008, Cooper & Smith (2011) found that young adults, aged 18-24, consistently had the highest rates of offending, and that those rates increased during that period of study. Uniform Crime Report (UCR) data for 2018 also show that more than 51% of homicide victims were between the ages of 17 and 34, while nearly 64% of known homicide suspects fell within that same age range (Federal Bureau of Investigation [FBI], 2018). An early longitudinal study conducted by Decker (1993) shows that the victim's age was within five years of the suspect's age in 45% of cases, the victim was more than five years older in 33% of cases, and more than five years younger 21% of the time (Decker, 1993). Studies have indicated an overall increase in gang-related homicides in recent decades, and that nearly a quarter of gang-related homicide victims are under the age of 18 (Cooper & Smith, 2011). While most gang homicides and domestic homicides occur between suspects and victims similar in age, most killings of small children (age 5 and under) or the elderly (age 65 or older) do not.

Furthermore, research shows that 86% of homicides of small children are committed by either a parent or a male acquaintance. Elderly victims are more likely than younger victims to be killed during the commission of a felony offense such as burglary or robbery (Cooper & Smith, 2011).

Homicide and Gender

As with age, the gender of both the suspects and the victims in homicide cases has also been widely studied. UCR data show that, of the 11,749 homicides reported in the United States in 2018 in which the gender of the suspect was known, nearly 88% were committed by males. Those same data show that, of the 14,094 homicides reported in which the gender of the victim was identified, more than 77% of the victims were male (FBI, 2018). A consensus found in several studies holds that women who commit homicide often target an intimate partner (most commonly a man, and often an abuser), while this is much less common amongst male offenders (Jordan, Clark, Pritchard, & Charnigo, 2012; Jurik & Winn, 1990). A study of homicides in St. Louis found that 82% of the cases in which women killed men involved either intimate partners (59%) or acquaintances (23%) (Decker, 1993). Furthermore, research shows that male offenders are much more likely than women to kill acquaintances or strangers than someone involved in intimate relations (Haynie & Armstrong, 2006). Cooper and Smith (2011) found that while women are more likely to be the victims of intimate partner and sex-related homicides, men are the victims in nearly 95% of all drug-related homicides. Research also shows that women who kill are more likely to use a weapon or to catch their victims (most commonly males) incapacitated, while male offenders are more likely to use sheer physical force against their victims (Jurik & Winn, 1990).

Moreover, research indicates that women, overall, commit a relatively small proportion of homicides compared to men, but when female-perpetrated homicides do occur, they often have distinct characteristics and contexts. Female offenders are more likely than men to kill intimate partners or family members, and their actions are frequently linked to situations of reactive violence or prolonged abuse, rather than predatory or instrumental violence, which is common in male perpetration (Jurik & Winn, 1990; Crosland et al., 2025). Studies of specific offender subgroups, such as female sexual homicide offenders, demonstrate meaningful variation in victim-offender relationships, racial patterns, and offense circumstances, suggesting that women's lethal violence is not homogeneous but shaped by situational and demographic factors (Chan et al., 2024). Furthermore, research from comparative analyses shows that female homicide offenders are often socioeconomically marginalized, and may have histories of psychological distress or abuse, which can influence both motives and legal outcomes (Turanjanin, 2025). These gendered patterns underscore the importance of examining female-perpetrated homicides on their own terms rather than assuming they mirror male offending dynamics.

Homicide and Race

Homicide data in the United States has consistently shown that young black males are more likely to be involved in homicides, as either victims or offenders, than young Hispanic males or young white males, who are the least likely (Phillips, 2002). Rogers, Rosenblatt, Hummer, and Krueger (2001) in their study found that the risk of homicide mortality decreases with age more for blacks than for whites. They also found that, while blacks are 7.7 times more likely than whites to be killed at age 18, they are only 1.4 times more likely to be killed by age 75. This shows that as age increases, the probability of getting killed decreases. Moreover, in the United States, it is most common for homicide victims and offenders to be of the same race (Avdija, Gallagher, & Woods, 2021). Between 1980 and 2008, about 84% of white victims were killed by whites, and 93% of black victims were killed by blacks (Cooper & Smith, 2011). According to Light and Ulmer (2016), two explanations for the racial disparity in homicide statistics were gun availability and the size of the crime-prone population within each demographic. Statistics also indicate that while approximately 90% of friend or acquaintance homicides occur within the same race, more than 25% of stranger homicides are interracial (Cooper & Smith). This is consistent with Decker's (1993) study that shows white homicides are more likely to occur between those whose relationships are more intimate, while black homicides more commonly occur between those whose relationships are more distant (Decker, 1993).

Furthermore, prior research indicates that race differences in homicide victimization and offending are influenced not only by individual behaviors but also by broader structural factors. Socioeconomic disadvantage, residential segregation, limited access to quality education, and concentrated poverty can increase exposure to violent environments and opportunities for criminal behavior (Sampson & Wilson, 1995; Peterson & Krivo, 2010). Additionally, systemic inequalities in policing, employment, and social services also contribute to persistent disparities in homicide rates among racial groups (Peterson & Krivo, 2010). Neighborhood social disorganization, including weak social cohesion and limited informal social control, have been linked to higher homicide rates, particularly in predominantly minority communities (Sharkey, 2018). Structural racism, such as discriminatory housing policies and labor market inequities, further exacerbates these disparities by constraining life opportunities and increasing vulnerability to violence (Clear, 2007). Understanding these structural factors is essential for interpreting patterns in victim-offender relationships and developing interventions that address the root causes of racial disparities in homicide.

Current Study

As stated in the introduction, this study examines four outcomes associated with victim-offender relationships in homicide cases. We focused the analyses around two main objectives. The first objective of this study is to examine if there is a difference between the circumstances in which homicides occur and the relationship

between the victim and the offender. In other words, we attempt to answer the following question: under what circumstances are certain types of homicides more likely to occur? The second objective focuses on examining the victim-offender relationship and the influence of the offender's gender, race, and age.

Methodology

The Data

In this study, we examined the entire forty years database (1976 to 2017) of the FBI's supplementary homicide reports (SHR) that were reported by the law enforcement agencies across the United States. Although these data come with many limitations, still the FBI's SHRs provide more detailed homicide reports than the Uniform Crime Reports (UCR), which are basic summaries of cases. The SHR includes demographic data for individual cases and for both victims and offenders (BJS, 2014; Pizarro & Zeoli, 2013). The analyses in this study are based on 769,753 total homicide cases that were reported and recorded by the FBI.¹ The actual data set includes information for 513,863 offenders and 757,801 victims in total. The homicide victims included in these reports ranged in age from less than 1 year old to 99 years old ($M = 32.8$, $S.D. = 16.13$). Most of the homicide victims (68%) were less than 37 years of age. By race, 49.9 % of the victims were white, 47%1% were black, 1.4% Asian or Pacific Islanders, 0.7% were Native Americans or Alaskan Natives, and for 1.1% of the victims, the race was not reported or recorded. By gender, 77.4% of homicide victims were males and 22.4% were females. For 0.2% of the cases, the gender was not reported. Those cases were coded as missing data. The average age for the known homicide offenders, on the other hand, was 30.9 ($S.D. = 12.93$), which is slightly younger than the average age of homicide victims. Most of the known offenders (68%) were less than 34 years of age. By race, 34.5% were white, 33.9% were black, 0.9% were Asian or Pacific Islanders, 0.6% were Native Americans or Alaskan Natives, and for 30.4% of the cases, the race of offenders was recorded as unknown. By gender, 87.7% of known offenders were males and 12.3% were females. For 29.4% of the offenders, the gender was unknown, which means that a significantly large number of homicide cases are never solved (Avdija & Akgul, 2020). For research purposes, it is noteworthy that the SHR reports offer categorical data only, which comes with an inherited limitation in terms of the type of analysis that one can perform on these data.

For this study, the categorical data were re-coded into dichotomous variables with *Yes/No* response categories. The age variables for the offenders were re-coded into seven categories each. Furthermore, for the current study, we were particularly interested in examining nine types of circumstances during which homicides took place. Namely, arson, robbery, burglary, rape, gang-related

¹Approximately 30% of all homicide cases are never solved by the police in the USA, which means that the gender, race, and age of offenders for those unsolved cases remain unknown (Avdija et. al, 2021). In this research article, we did not include missing cases in the analyses because, by definition, those cases involve unknown offenders for which we cannot draw associative or inferential conclusions.

homicides (e.g., gangland killings and juvenile gang killings), drug offenses, and homicides that occurred during brawl due to the influence of alcohol or narcotics. The rest of the circumstances (e.g., crime types) were not included in the analysis. Also, it is worth mentioning that the analyses in this study include cases for which the information was available. Cases that had missing information or had partial information were included only for the portion of the information that was available for analysis. For example, cases in which the offender's gender was unknown were not factored into the total because, by definition, that information was missing.

Measures of the Variables

The dependent variables in this study were the annual homicide cases combined for a period of forty years. This included both instrumental homicides and expressive homicide cases. For the correlates of homicides in this study, we included three groups of variables. In the first group, we included nine types of circumstances in which homicides occurred, each with a significantly large number of cases. Those circumstances were arson-related homicides (n=4,581), burglary-related homicides (n=6,400), robbery-related homicides (n=59,716), rape-related homicides (n=4,191), gangland-related homicides (n=4,845), juvenile gang-related homicides (n=24,040), drug-deal-gone bad homicides (e.g., drug offenses, n=28,823), and homicides that occurred as the result of brawls due to the influence of alcohol (n = 16,143), or narcotics (n=5,149). All these variables were re-coded dichotomously with Yes, *coded 1*, and No, *coded 0* response categories.

The independent variables that we included in the analyses were the offender's race, offender's gender, and offender's age. The race was coded categorically using the following categories: American Indian or Alaskan Natives, *coded 1*, Asian or Pacific Islanders, *coded 2*, Blacks, *coded 3*, Whites, *coded 4*, and race unknown, *coded 5*. Gender was coded dichotomously with 1 for males and 0 for females, and age was measured in continuous years. However, age as a continuous variable did not serve a useful purpose for the cross-tabulation analysis, so we decided to re-code it into seven categories: 0-14 (1.2%) *coded 1*, 15-20 (20.5%) *coded 2*, 21-30 (37.4%) *coded 3*, 31-40 (20.9%) *coded 4*, 41-50 (11.1%) *coded 5*, 51-60 (5.3%) *coded 6*, and 61-99 (3.5%) *coded 7*. This re-coding allowed us to examine patterns in the data more systematically across different age groups. After conducting preliminary analyses using frequency counts for these age categories, we observed that some categories contained disproportionately high or low numbers of cases, which could potentially bias subsequent analyses. To address this issue and achieve a more balanced distribution across categories, we decided to organize the age variables into increments of 10 years (with the exceptions of the first two categories). This approach ensured that each age category contained a more comparable number of cases, improving the reliability and interpretability of our frequency-based analyses.

The third group of variables defines the relationship between homicide victims and the offender. We included fourteen types of victim-offender relationships in this study. These fourteen variables can be further classified into four sub-categories; namely, intimate relationship, acquaintance, friends/neighbors, and strangers. However, the analyses are computed and reported for each of the fourteen variables

independently. The main reason for not grouping these types of relationships was to develop a more comprehensive and accurate estimate of the effects of the victim-offender relationship on homicide cases, which were measured in the form of differences within-groups and between-groups. Most prior studies have grouped victim-offender relationships into four groups (Fridel & Fox, 2019; Pizarro & Zeoli, 2013; Liqun Cao, Hou, & Bu Huang, 2007; Decker, 1993; Kennedy & Silverman, 1990; Kratcoski, 1990). Some studies have even grouped them as dichotomies with only two groups, e.g., non-strangers vs. strangers (Messner & Tardiff, 1986) or primary vs. secondary (Smith & Parker, 1980; Drawdy & Myers, 2003). This will not do enough justice to the accuracy of within-group differences. Our study, therefore, offers a much broader list of categories that prior studies seem to have ignored so far.

Results

Homicide Cases by the Circumstance

Table 1 presents the results from the cross-tabulation analyses examining the type of victim-offender relationship and nine different types of circumstances in which homicides occurred. The data in Table 1 show that homicide killings between family members (i.e., when the victim is a brother, sister, son, daughter, father, mother, husband, or wife) are more likely to occur when the offender is under the influence of alcohol or narcotics. In fact, most homicide killing between family members are notably related to brawls due to the influence of alcohol. For instance, the influence of alcohol is responsible for 74.6% of the cases in which the wife kills her husband, 62.9% of the cases in which the husband kills his wife, 62.4% of the cases in which a brother or a sister kills his/her brother, and 38% of the cases in which a son or daughter kills the father. There is also a high percentage of homicide killings between family members that occur during an arson circumstance. On the other hand, when the victim is an acquaintance, a homicide is more likely to occur during a robbery (28.2%), also when a drug-deal goes bad (28.8%), or during brawls due to the influence of alcohol (20.9%). Furthermore, the data in Table 1 show that an offender is more likely to kill a friend (22.5%) or neighbor (38.9%) during a robbery or when he/she is under the influence of alcohol (33.5% and 14.5% respectively) compared to other types of circumstances. When the victim was a stranger, 60.5% of the homicide killings occurred during a robbery, 7.8% during a drug deal, and 11.1% were juvenile gang killings.

Table 1. *Examining Victim-Offender Relationship vs. the Type of Circumstances*

Homicide Victims	The Circumstance (Crime Type) During which Homicide Occurred									Total
	Arson	Influence of alcohol	Influence of narcotics	Burgle	Gang killings	Juvenile gang killings	Narcotic drug laws	Rape	Robbery	
Acquaintance	2.2%	20.9%	6.7%	3.2%	3.3%	4.0%	28.8%	2.7%	28.2%	100%
Boyfriend	3.0%	59.4%	8.4%	7.8%	0.0%	0.3%	9.9%	1.2%	10.1%	100%
Girlfriend	7.6%	39.2%	13.4%	8.4%	0.8%	0.3%	12.0%	9.5%	8.8%	100%
Brother	9.8%	62.4%	6.5%	2.8%	0.7%	0.2%	10.7%	0.4%	6.5%	100%
Sister	35.8%	16.3%	8.1%	8.1%	0.8%	0.8%	6.5%	10.6%	13.0%	100%
Son	37.9%	28.8%	19.1%	1.9%	0.0%	0.3%	9.1%	0.8%	2.2%	100%
Daughter	57.2%	12.8%	12.4%	0.8%	0.8%	0.0%	8.8%	6.4%	0.8%	100%
Father	10.7%	38.0%	9.7%	5.0%	0.7%	0.3%	7.3%	1.0%	27.3%	100%
Mother	24.3%	18.1%	14.4%	4.5%	0.0%	0.0%	7.0%	2.1%	29.6%	100%
Husband	7.1%	74.6%	5.2%	3.4%	0.2%	0.0%	4.7%	2.2%	2.5%	100%
Wife	13.0%	62.9%	7.2%	5.8%	1.2%	0.2%	6.5%	1.6%	1.6%	100%
Friend	1.9%	33.5%	6.2%	2.0%	2.0%	2.7%	26.6%	2.7%	22.5%	100%
Neighbor	11.1%	14.5%	1.7%	16.6%	0.5%	0.5%	3.7%	12.7%	38.9%	100%
STRANGER	1.6%	7.1%	1.2%	5.9%	2.1%	11.1%	7.8%	2.8%	60.5%	100%
Total Cases	2195	12973	3322	3934	2027	5945	13954	2426	35557	82333
Total %	2.7%	15.8%	4.0%	4.8%	2.5%	7.2%	16.9%	2.9%	43.2%	100%

Note: Row data – the data are compared for each row. Chi-Square = 29590.53, df = 104, p < .000

Homicide Cases by the Offender's Gender

The data in Table 2 answer the question: is there a relationship between the offender's gender and the outcome of homicide cases based on the victim-offender relationship? The cross-tabulation analyses in Table 2 show that gender is a deciding factor in the outcome of homicide cases. The comparison within the offender's gender shows that most homicide offenders were males (87.7%) and only 12.3% were females. When taking the victim-offender relationship into account, the most notable differences by gender are cases in which the brother kills his brother (91%) or his sister (80.9%) compared to cases in which the sister kills her brother (9%) or her sister (19.1%). These are followed by cases in which the son kills his father (89.2%) or his mother (83.7%) compared to cases in which the daughter kills her father (10.8%) or her mother (16.3%), and cases in which the father kills his son (60.4%) or his daughter (52%) compared to cases in which the mother kills her son (39.6%) or her daughter (48%). This means that fathers are more likely to kill their sons than daughters (9.4% difference); mothers are more likely to kill their daughters than their sons (9.6% difference). Brothers are more likely to kill their brothers than their sisters (9.1% difference), and sisters are more likely to kill their sisters than their brothers (10.1% difference). Additionally, sons are more likely to kill their fathers than their mothers (5.5% difference); and daughters are more likely to kill their mothers than their fathers. Moreover, 92.7% of homicide cases involving acquaintances as victims are committed by male offenders. Likewise, 96.6% of homicide cases in which the victims were strangers were committed by male offenders. What is predictive about these research results is the cross-gender expectation. Research shows that most offenders kill victims of the opposite gender, male offenders especially (Chan, 2013; Petrosky et. al., 2017). This is true when one takes into account gender only. However, when

examining this difference within the victim-offender relationship (i.e., homicides that occur between family members), there is evidence to suggest that female offenders are more likely to kill female victims, and vice versa. In other words, offenders tend to kill more victims within their own gender when taking into account the victim-offender relationship.

Table 2. *Examining Victim-Offender Relationship vs. Offender's Gender*

Homicide Victims	Within Relationship Comparison			Within Gender Comparison		
	Offender's Gender		Total	Offender's Gender		Total
	Female	Male		Female	Male	
Acquaintance	22.4%	40.0%	37.8%	7.3%	92.7%	100.0%
Boyfriend	17.4%	0.1%	2.2%	95.9%	4.1%	100.0%
Girlfriend	0.3%	5.5%	4.9%	0.7%	99.3%	100.0%
Brother	1.2%	1.8%	1.7%	9.0%	91.0%	100.0%
Sister	0.6%	0.4%	0.4%	19.1%	80.9%	100.0%
Son	9.6%	2.1%	3.0%	39.6%	60.4%	100.0%
Daughter	8.7%	1.3%	2.2%	48.0%	52.0%	100.0%
Father	1.2%	1.4%	1.4%	10.8%	89.2%	100.0%
Mother	1.7%	1.3%	1.3%	16.3%	83.7%	100.0%
Husband	23.8%	0.1%	3.0%	98.0%	2.0%	100.0%
Wife	0.3%	8.1%	7.2%	0.4%	99.6%	100.0%
Friend	4.4%	7.0%	6.7%	8.1%	91.9%	100.0%
Neighbor	1.3%	2.1%	2.0%	8.1%	91.9%	100.0%
STRANGER	7.1%	28.9%	26.2%	3.4%	96.6%	100.0%
Total Cases	48900	347470	396370	48900	347470	396370
Total %	100.0%	100.0%	100.0%	12.3%	87.7%	100.0%

Note: Percent (%) in Rows: The percentage that each cell represents within a table row. SPSS calculates the row percentage for each cell by dividing the cell count by the row total. Percent (%) in Columns: The percentage that each cell represents within a table column. SPSS calculates the column percentage for each cell by dividing the cell count by the column total. In Table 2, the percents for columns that represent the offender's gender "Within Relationship Comparisons" should be read in columns; whereas for the offender's gender "Within Gender Comparison" should be read in rows. (Chi-Square = 174384.70, df = 13, $p < .000$).

Homicide Cases by the Offender's Race

Existing research on cross-race relationships shows that offenders are more likely to target victims within their own race (Avdija et al., 2020; Cooper & Smith, 2011; Pallone & Hennessy, 2000). However, these studies did not look at the race differences within the victim-offender relationships. Thus, one of the objectives of this study is to answer the question: is there a relationship between the offender's race and the outcome of homicide cases based on the victim-offender relationship? To address this objective, the cross-tabulation analyses (between-races comparisons) are presented in Table 3, and (within-race comparisons) in Table 4. When comparing the cross-race effect on the victim-offender relationship in homicide cases (see Table 3), it becomes obvious that only two races are responsible for most homicide cases; namely whites (48.5%) and blacks (44.9%). Asians/Pacific Islanders (1.3%) and American

Indians or Alaskan Natives (0.8%) represent a very small percentage of offenders involved in homicide cases in the United States relative to the types of relationships that are included in this study.

When comparing homicides that occurred between family members in Table 3, the percentages are much higher for white offenders than for black offenders. For instance, black offenders are more likely to commit homicides when the victim is a boyfriend (64.4%) or an acquaintance (54.2%) than white offenders (32.3%, 41.5% respectively). On the other hand, whites are more likely to kill their fathers (69.6%), mothers (74.4%), wives (71.3%), sons (60.7%) and daughters (60%) than black offenders and offenders from the other races. Thus, the relationship type significantly correlates with the racial distribution of offenders in this homicide dataset.

Table 3. *Examining Victim-Offender Relationship vs. Offender's Race (between races comparison)*

Homicide Victims		Offender's Race					Total
		American Indian or Alaskan Native	Asian or Pacific Islander	Black	Unknown	White	
Acquaintance		1.0%	0.9%	54.2%	2.5%	41.5%	100.0%
Boyfriend		1.4%	0.7%	64.4%	1.2%	32.3%	100.0%
Girlfriend		1.0%	1.4%	46.3%	1.4%	49.8%	100.0%
Brother		1.8%	0.9%	43.8%	1.1%	52.5%	100.0%
Sister		1.4%	2.9%	34.0%	1.2%	60.5%	100.0%
Son		0.9%	2.1%	34.8%	1.5%	60.7%	100.0%
Daughter		1.1%	2.4%	34.9%	1.6%	60.0%	100.0%
Father		1.1%	1.2%	27.2%	0.9%	69.6%	100.0%
Mother		0.7%	1.9%	21.9%	1.1%	74.4%	100.0%
Husband		0.8%	1.0%	40.6%	1.0%	56.6%	100.0%
Wife		0.6%	2.2%	24.7%	1.3%	71.3%	100.0%
Friend		1.2%	1.3%	41.0%	2.1%	54.4%	100.0%
Neighbor		0.7%	0.8%	37.1%	1.2%	60.1%	100.0%
STRANGER		0.5%	1.4%	41.5%	11.0%	45.6%	100.0%
Total cases		3488	5146	184264	18438	199375	410711
Total %		0.8%	1.3%	44.9%	4.5%	48.5%	100.0%

Note: Row Data – the data are compared for each row. Note: Row % represents data within offender's relationships (e.g., cross-race comparison) – the data are compared for each row. (Chi-Square = 32185.51, df = 52, p < .000).

Table 4 presents the within-race distributions of homicide victim-offender relationships by offender's race (e.g., American Indian or Alaskan Native, Asian or Pacific Islander, Black, Unknown, and White). Each column in the table sums to 100%, indicating the proportion of homicide cases for each offender's race that fall into each relationship category (e.g., acquaintance, stranger, spouse, family). In Table 4, the examination of homicides within the victim-offender relationship by race (within-race comparison) shows that for nearly half of all homicide cases involving black offenders, the victims were acquaintances (44.9%), followed by strangers (25.9%), and then friends (5.9%). For white offenders, on the other hand, 31.8% of the victims were acquaintances, 26.2% were strangers, 10.2% of the victims were wives, and 7.3% were friends. For Asian/Pacific Islanders, 26.2% of the victims were acquaintances, 30.2%

were strangers, 12% of the victims were wives, and 7% were friends. For American Indian/Alaskan Natives, 42% of the victims were acquaintances, 18% were strangers, 9% were friends, and 4.5% of the victims were wives. Overall, these results show that, for all racial groups, a substantially large number of homicide victims were acquaintances (37.2% total, with the range scores from 20.7% to 49.9%), followed by strangers (27.9%) and wives (6.9%).

These data patterns suggest that, while non-intimate relationships (e.g., acquaintance, stranger) dominate homicide linkages across racial groups, white offenders in this dataset have a somewhat greater relative share of homicides in intimate or domestic categories (e.g., wife, girlfriend, etc.) and familial roles (e.g., son, daughter) than do black offenders. Conversely, black-offender homicides are more heavily concentrated in non-intimate relationships (e.g., acquaintance, strangers) than those of white offenders.

Table 4. *Examining Victim-Offender Relationship vs. Offender's Race (within race comparison)*

Homicide Victims		Offender's Race					Total
		American Indian or Alaskan Native	Asian or Pacific Islander	Black	Unknown	White	
Acquaintance		42.0%	26.2%	44.9%	20.7%	31.8%	37.2%
Boyfriend		3.7%	1.3%	3.1%	0.6%	1.4%	2.2%
Girlfriend		5.6%	5.4%	4.9%	1.5%	4.9%	4.7%
Brother		3.5%	1.2%	1.6%	0.4%	1.8%	1.6%
Sister		0.7%	0.9%	0.3%	0.1%	0.5%	0.4%
Son		3.2%	4.9%	2.3%	1.0%	3.6%	2.9%
Daughter		2.8%	4.1%	1.7%	0.8%	2.7%	2.2%
Father		1.7%	1.3%	0.8%	0.3%	1.9%	1.4%
Mother		1.1%	1.9%	0.6%	0.3%	2.0%	1.3%
Husband		2.7%	2.4%	2.6%	0.6%	3.4%	2.9%
Wife		4.5%	12.0%	3.8%	2.0%	10.2%	6.9%
Friend		9.0%	7.0%	5.9%	3.0%	7.3%	6.5%
Neighbor		1.7%	1.3%	1.6%	0.5%	2.4%	2.0%
STRANGER		18.0%	30.2%	25.9%	68.3%	26.2%	27.9%
Total cases		3488	5146	184264	18438	199375	410711
Total %		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note: The data are compared for each column. Note: Column % represents data within offender's race (e.g., total number of homicides within victim-offender relationship vs. specific race) – the data are compared in each column. (Chi-Square = 32185.51, df = 52, $p < .000$).

Homicide Cases by the Offender's Age

Table 5 presents the data for the offender's age and the outcome of homicide cases based on the victim-offender relationship. The cross-age comparison in Table 4 shows that the most representative age category is 21 to 30 with 36.9% total. This means that 36.9% of all homicides were committed by offenders age 21 to 30. The second age category was 31 to 40 with 21.5%, followed by the 15 to 20 age category with 19.6%. When comparing the cross-age effect by the type of relationship, the most critical age category for homicides that occur between family members is 21 to 30. The data in Table 5 show that a father or mother is more likely to kill her/his son (40.3%) or

daughter (46.9%) when the offender is between the ages of 21 and 30 years old. Likewise, a son or a daughter is more likely to kill his/her father (35%) or mother (30.2%) when the offender is between the ages of 21 to 30 years old. On the other hand, the husband is more likely to kill his wife when the offender is between the ages of 31 and 40 years old (27.5%), which is the highest of all age categories. The wife is also more likely to kill her husband around the same age category (31.6%) compared to all other age categories. Furthermore, the data show that there is a linear decrease in the likelihood of homicide occurrence against mother/father after the offender reaches the age of 30. The same type of linear decrease by age is observed in all types of relationships.

The oldest age category (61 to 99 years old) is small in almost every relationship category, except in the wife-homicides. The data in Table 5 show that this age category represents 17.2% of all wife-homicides, which is relatively large percentage compared to other categories. This suggests that among offender ages 61 or older, spousal (wife) homicide is a non-negligible fraction of their relational offense pattern.

The overall observed patterns in Table 5 align with the established criminological understandings of the age-crime curve, which typically peaks in late adolescence and young adulthood and declines thereafter (Moffitt, 1993; Farrington, 1986; Ray & Jones, 2023; Steffensmeier et al, 2025). Younger offenders dominate violent crime and homicide involvement, particularly in non-intimate settings or among acquaintances and strangers.

Table 5. *Examining Victim-Offender Relationship vs. Offender's Age (between age groups comparison)*

Homicide Victims	Offender's Age							Total
	0 to 14	15 to 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 99	
Acquaintance	0.9%	21.8%	39.7%	20.5%	10.0%	4.6%	2.5%	100.0%
Boyfriend	0.2%	10.6%	38.9%	28.8%	15.5%	4.8%	1.3%	100.0%
Girlfriend	0.1%	7.8%	35.4%	28.2%	17.5%	8.1%	3.0%	100.0%
Brother	6.3%	19.3%	32.4%	20.1%	12.3%	6.4%	3.3%	100.0%
Sister	15.2%	23.1%	23.4%	12.8%	8.9%	8.5%	8.1%	100.0%
Son	0.4%	13.6%	40.3%	20.7%	11.5%	6.9%	6.4%	100.0%
Daughter	0.5%	15.2%	46.9%	22.4%	8.9%	3.6%	2.5%	100.0%
Father	4.6%	29.2%	35.0%	18.1%	8.9%	3.4%	0.7%	100.0%
Mother	3.1%	19.8%	30.2%	20.6%	14.6%	8.7%	2.9%	100.0%
Husband	0.0%	2.7%	26.2%	31.6%	22.0%	11.3%	6.1%	100.0%
Wife	0.0%	0.8%	17.4%	27.5%	23.0%	14.0%	17.2%	100.0%
Friend	2.8%	21.7%	36.5%	20.0%	10.6%	5.4%	3.0%	100.0%
Neighbor	2.6%	15.8%	27.7%	20.9%	14.2%	9.4%	9.4%	100.0%
STRANGER	0.9%	27.2%	40.4%	19.0%	7.7%	3.0%	1.8%	100.0%
Total	4304	74983	141424	82322	43928	21280	14580	382821
	1.1%	19.6%	36.9%	21.5%	11.5%	5.6%	3.8%	100.0%

Note: Row % represents data within the offender's relationships (e.g., between age groups comparison) – the data are compared for each row. (Chi-Square = 55367.51, df = 78, p < .000).

When examining the total number of homicides within the victim-offender relationship by the specific age category in Table 6, offenders age 14 or younger are more likely to kill acquaintances (30.9%), friends (17%), and strangers (19.6%) than all other age categories combined. Similar behavior is observed among offenders age 15 to 20 and 21 to 30. For offenders ages 31 and older, killing their wives is their third-largest probability, with percentages ranging from 9.4% to 33.1%. Interestingly enough, there is a linear increase in the percentage of homicides involving wives as victims. In other words, as an offender's age increases, the probability of killing his wife increases linearly. Furthermore, across most offender age categories (except for the oldest), acquaintance is the most frequent relationship type. Specifically, 42.4% of homicides committed by offenders aged 15 to 20 were acquaintance killings; 41.1% for those aged 21 to 30; and 36.4% for those aged 31 to 40. Even for the older groups (41 to 50 and 51 to 60), acquaintance remains dominant at 33.3% and 31.4%, respectively. Only among offenders aged 61 to 99 does wife-homicide surpass acquaintance (33.1% wife vs 24.8% acquaintance).

The decline in stranger-homicides with age that we see in Table 6 may reflect a contraction of offender social scope or opportunity. That is, as individuals age, they may engage less in risky social mobility, have smaller social circles, or commit fewer aggressive encounters outside familiar networks (Mata et al., 2011; Bruine de Bruin et al., 2019; Walker et al., 2000). These life-course dynamics could reduce the likelihood of lethal conflict with strangers, and as such, we see a decline in stranger-homicides by age.

Table 6. *Examining Victim-Offender Relationship vs. Offender's Age (within age groups comparison)*

Homicide Victims	Offender's age							Total
	0 to 14	15 to 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 99	
Acquaintance	30.9%	42.4%	41.1%	36.4%	33.3%	31.4%	24.8%	38.2%
Boyfriend	0.3%	1.2%	2.4%	3.1%	3.1%	2.0%	0.8%	2.3%
Girlfriend	0.6%	2.0%	4.8%	6.5%	7.6%	7.2%	4.0%	5.0%
Brother	9.7%	1.7%	1.5%	1.6%	1.9%	2.0%	1.5%	1.7%
Sister	5.5%	0.5%	0.3%	0.2%	0.3%	0.6%	0.9%	0.4%
Son	1.1%	2.1%	3.3%	2.9%	3.1%	3.8%	5.1%	3.0%
Daughter	1.0%	1.8%	2.9%	2.4%	1.8%	1.5%	1.5%	2.3%
Father	5.8%	2.1%	1.4%	1.2%	1.1%	0.9%	0.3%	1.4%
Mother	3.7%	1.4%	1.1%	1.3%	1.7%	2.1%	1.0%	1.3%
Husband	0.1%	0.4%	2.2%	4.5%	5.9%	6.2%	4.9%	3.1%
Wife	0.1%	0.3%	3.5%	9.4%	14.7%	18.5%	33.1%	7.3%
Friend	17.0%	7.5%	6.7%	6.3%	6.3%	6.6%	5.4%	6.8%
Neighbor	4.8%	1.7%	1.6%	2.0%	2.6%	3.5%	5.1%	2.1%
STRANGER	19.6%	34.9%	27.5%	22.2%	16.8%	13.8%	11.8%	25.1%
Total Cases	4304	74983	141424	82322	43928	21280	14580	382821
Total %	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note: Column % represents data within the offender's age (e.g., the total number of homicides within the victim-offender relationship vs. specific age category) – the data are compared in each column. (Chi-Square = 55367.51, df = 78, $p < .000$).

Discussion

This study sought to examine the differences between the types of circumstances in which homicides occur as affected by the victim-offender relationship. It also examined the differences within-gender, within-race, and within-age categories in homicide cases based on the victim-offender relationship. Based on the research findings of this study, several concluding statements can be drawn connecting circumstances in which homicides occur, the types of victim-offender relationships, and offenders' demographic characteristics.

Circumstance: The current study shows that when the victim is a stranger or a neighbor/friend, the homicide is most likely to occur during a robbery, with more than two-thirds of the cases associated with this type of circumstance. The second-highest number of homicides for these two victim categories occurred during the brawls due to the influence of alcohol or narcotics. Perhaps these findings make more sense for homicides involving neighbors or friends as victims during incidents when the offender is under the influence of alcohol or narcotics, but it is not easy to understand why someone would kill a neighbor or a friend during a robbery incident. It is not surprising, however, to observe the influence of alcohol on homicide involvement. In fact, Kuhns, Exum, Clodfelter, and Bottia's (2013) study shows that about half of all homicide offenders were under the influence of alcohol when they committed the offense. Furthermore, this study shows that three-fourth of homicide killings between family members were notably related to brawls due to the influence of alcohol. For instance, the influence of alcohol was responsible for most of the cases in which the wife killed her husband or the husband killed his wife, cases in which a brother or a sister killed the brother, and cases in which a son or daughter killed the father.

Gender: The results of the current study show that offenders are more likely to kill victims within their own gender when making this comparison within the victim-offender relationship. This means that fathers are more likely to kill their sons than their daughters; mothers are more likely to kill their daughters than their sons. Brothers are more likely to kill their brothers than their sisters, and sisters are more likely to kill their sisters than their brothers. Additionally, sons are more likely to kill their fathers than their mothers; and daughters are more likely to kill their mothers than their fathers. These results do not concur with some of the prior studies, which show evidence that offenders are more likely to kill victims of the opposite gender (Chan, 2013; Petrosky, Blair, Betz, et. al., 2017; Greenfield & Rand, 1992; U.S. BJS, 2023)

Race: In a large number of prior studies, the victim's race in homicide cases has been studied from the profiling perspective by focusing on who is most likely to become the victim of a homicide (Avdija et al., 2021). In this regard, research shows that blacks are, by far, more likely to become victims of homicide when compared to whites and other races (Sampson & Lauritsen, 1997; Riddell et al., 2018; UCR, 2019). However, this does not mean black victims of homicides are killed by white offenders. The existing research on cross-race relationships shows that offenders are more likely to target victims within their own race (Avdija, et al., 2021; Cooper & Smith, 2011; Pallone & Hennessy, 2000). Nonetheless, these

types of studies did not look at the race differences within the victim-offender relationships. The current study, thus, adds to the existing literature by examining the differences between the offender's race and the outcome of homicide cases based on victim-offender relationships. When comparing homicides that occur amongst family members, the current study shows that the percentages are much higher for the white offenders than for the black offenders. This study shows that whites are more likely to kill their parents, wives, sons, and daughters compared to black offenders and offenders from other races. Conversely, black offenders are more likely to commit homicides when the victim is an acquaintance or a significant other compared to white offenders.

Age: The current study shows that age is an important factor in homicide cases. This study shows that more than one-third of all homicides were committed by offenders age 21 to 30. The second age category was 31 to 40, followed by the 15 to 20 age category. A notable finding that emerged in this study is the observed trend change in the homicides against parents. The analyses show that there is a linear decrease in the likelihood of homicide occurrences against mother/father after the age of 30. On the other hand, there is a linear increase in the percentage of homicides involving wives as victims, which is consistent with prior research on this topic (Kratcoski & Walker, 1988; Bourget et al., 2010; Shaw et al., 2012). In other words, as an offender's age increases, the probability of killing his wife increases linearly. Romantic partner homicides (girlfriend, boyfriend) also gain relative prominence in midlife; though it never surpassed spousal or acquaintance categories. Familial and child-victim homicides remained relatively stable and modest in share across all age groups, with slight increases in some categories in the oldest age strata.

In conclusion, the analyses that we presented here represent a small, but useful, piece of empirical evidence that sheds some light on the importance of victim-offender relationship in homicide cases. What makes this study unique is its use of a comprehensive database of homicide cases comprising approximately three-quarters of a million incidents and covering an extended period of time. The size and scope of this dataset allow for more robust and reliable analyses than are typically possible with smaller samples. In contrast, many prior studies have relied on sampled data with relatively small numbers of cases, which can limit generalizability of their research findings. Nonetheless, this study has its own limitations. Thus, we acknowledge that this is a retrospective study and it was largely depended on the availability of adequate police records that were reported and recorded by the FBI's Uniform Crime Report. Second, this research is not intended to examine the cause/effect relationship between variables. Instead, it focused on the associative relationship between variables. Another limitation that we acknowledge here is the weaknesses found within the UCR reporting program itself. There are too many issues associated with how the data are reported and recorded by the UCR, and thus we cannot verify the accuracy of homicide cases that are included in the analysis. Further, the Supplementary Homicide Reports (SHR) provide detailed data on homicides reported by U.S. law enforcement, but participation is voluntary, leading to gaps and underrepresentation in some areas. SHR data include basic victim and offender demographics, weapon type, and victim-offender relationship, but omit important contextual information such as motive or prior conflict. Additionally, incomplete or inconsistent recording of

demographic variables limit the ability to fully analyze patterns and disparities in homicide. However, this is one of the limitations that all researchers acknowledge about using SHR/UCR data. In this regard, we advise readers to consider the unavoidable flaws of the UCR data and judge them for what they are when interpreting the results of this study.

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Adolescence from a Social Science Perspective

By Antonio Marziale*

The article examines adolescence not as a universal biological transition, but as a complex social construction that varies according to historical, anthropological, and cultural contexts. Moving from the origin of adolescence in late 19th-century industrial societies to the contemporary late-modern scenario, the study investigates how structural uncertainty, social acceleration, and demographic shifts redefine youth transitions to adulthood. Drawing on a theoretical-critical review that integrates symbolic interactionism, the sociology of childhood, and Bauman's liquid modernity framework, the paper highlights the active agency of adolescents in constructing their identity and navigating multi-layered socialization processes. The updated study clarifies its core research objectives and methodological framework, providing a unified reading of adolescent identity while addressing cultural differences, biographical time, and social reflexivity.

Keywords: *adolescence, identity, socialization, agency, cultural differences, uncertainty*

Introduction: Definitions of Adolescence

What adolescence is a matter of definitions that vary from culture to culture? Generally speaking, adolescence is the stage of life between childhood and adulthood. It is a period of development in which young people move from a state of dependence to a state of independence, autonomy, and maturity, from being part of a family group to belonging to a peer group, until reaching the independent state of adulthood (Mabey and Sorensen 1965).

In Western society, the transition from childhood to adulthood, through adolescence, is much more than a linear sequence of change. Adolescent development does not follow the same path for everyone, but is the result of an interaction between the formation of one's identity and one's social context. It is a multidimensional process that involves a gradual transformation – or metamorphosis – of the child, who, as he or she becomes an adult, transforms into a new person. It is important to note, however, that the transformations involved in adolescence vary depending on the culture: for example, in some cultures, certain childhood roles remain similar into adulthood, while in other cases, even very young children routinely perform certain work-related tasks for the well-being of the family. Furthermore, in some cultures, the number of years dedicated to education before starting work is relatively limited. In these cultures, the transition from childhood to adulthood tends to be less demanding (Mead 2007). Under an anthropological lens, the transition from childhood to adulthood exhibits deep cultural variations. While traditional societies often mark this passage through clearly defined, event-centric rites of passage, contemporary Western societies present prolonged and de-synchronized transitions. From a

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demographic perspective, current structural trends - such as population aging, falling birth rates, and the extension of time spent in education and the family of origin - have reshaped the temporal boundaries of youth. This phenomenon, often described as emerging adulthood, transforms adolescence from a short transition into an elastic, extended life phase shaped by socioeconomic status, gender, and cultural background.

We could better describe adolescence if we defined it as a “social construct”, whose origins can be traced back to the late 19th century in the most complex societies. The Industrial Revolution and the profound social and economic changes that followed meant that a large number of young people found themselves in a situation they had never experienced before. Particularly in the bourgeois world, the increased importance of education until advanced ages and long periods of non-productive apprenticeship created a prolonged period of preparation for adulthood. Adolescence is, therefore, a process that extends over a significant period of life, but its duration is variable, and some young people move through it much more quickly than others. It presents many challenges, requiring them to address physiological, biological, psychological, and social changes. For these challenges to be met adaptively and effectively, significant transformation processes must occur within the young person, which must be analyzed by considering a series of inevitable biological, cognitive, psychological, social, moral, and spiritual stages.

The literature on adolescence, particularly extensive in recent years, offers many definitions, each of which favors a particular perspective. Each theoretical model possesses a certain explanatory potential, which is not always easily integrated with others. From a physiological perspective, for example, pubertal, somatic, and neuroendocrine changes take center stage during adolescence, typically described as a succession of developmental sequences. A similar concept of developmental stages has also played a central role in psychological sciences, and most contributions focus on growth phases. Psychoanalysis does not deviate from this vision and describes adolescence as a life cycle in a maturational sequence. The psycho-sociological perspective, however, is different, having given centrality to the transition from family to peer group, highlighting the difficulties in assuming adult roles. At this stage, socialization processes and forms of peer aggregation take on a critical role in facilitating the transition or decreeing its failure (Melucci and Fabbrini 1992).

Attempts to synthesize the various contributions to reach a more unified approach that helps us understand a multidimensional phenomenon such as adolescence have multiplied and converge on the concept of the “Self”, which Cooley (1902) conceived as the self-reflective capacity of the subject, a mirror that reflects the social dynamics of interaction. For Cooley, the “Self” is a quality that derives from the socialization process that takes place within the family. This thought gave rise to the movement of symbolic interactionism, a theoretical orientation that has established itself in sociology and social psychology, especially in the United States, since the first half of the twentieth century, which emphasizes the formation of individual identity in the process of socialization. For Mead (1967), the “Self” is a reflected entity that each person constructs by appropriating the point of view of others who are important to them, while Goffman (1961)

emphasizes how the "Self" does not simply originate from the processes of interaction between the "I" and "others", but also from the type of significant structure that is organized around it, that is, from the situation. The social situation is the generative fabric of the "Self", the context within which identities are established and maintained through a process of social negotiation.

The English sociologist Musgrove (1964) considers adolescence as a contemporary invention similar to that of the steam engine. In 1765, Watt invented the steam engine, while Rousseau conceived adolescence in 1762. With the invention of adolescence, society found itself faced with two fundamental problems: how and where to place it in the social structure and how to make its behavior coincide with what is expected. Melucci and Fabbrini (1992) also talk about the invention of adolescence by adults, while Berger and Berger (1975) consider the term "adolescent" to be inappropriate, since the phenomenon of youth is broader than that of adolescence, but overall, this statement can also be applied to youth. In other words, the industrial revolution produced an institutional structure that gives space to youth.

The primary objective of this article is to analyze the adolescent transition not merely as a biological or universal event, but as a complex socio-cultural process that is historically situated and dynamically negotiated. To achieve this goal, the study addresses three main research questions:

1. How do late-modern transformations (such as liquid society, social acceleration, and the de-standardization of life courses) redefine identity construction and the 'Self' in adolescents?
2. How do anthropological and demographic dimensions intersect with cultural and social differences during adolescence and the transition to adulthood?
3. To what extent does youth agency allow adolescents to negotiate structural uncertainty and convert it into a biographical resource?

Theoretical Framework and Methodological Approach

The theoretical framework of this study rests on the integration of social constructivism, symbolic interactionism (Cooley 1902, Mead 1967, Goffman, 1961), and the sociology of childhood and youth (Prout & James 1997, Corsaro, 2003, 2018). These perspectives refrain from treating adolescents as passive recipients of socialization; instead, they acknowledge young people as active social actors endowed with agency, capable of interpreting, resisting, and renegotiating the meanings attached to their experiences.

From a methodological perspective, this article adopts a theoretical-critical approach based on a qualitative narrative literature review. The investigation relies on a systematic review and synthesis of classical and contemporary sociological, anthropological, and psychological literature. By critically comparing key theoretical paradigms - ranging from structural functionalism to late-modern critical theory (Bauman 2003, 2006, Leccardi 2005, 2016) - the study maps the multi-layered evolution of youth transitions and identity formation.

Liquid Adolescence

Contemporary adolescents exhibit certain specific characteristics that scholars identify with terms such as “patchwork” personality (i.e., an artifact consisting of the sewing together of different pieces of fabric, generally but not exclusively cotton, to create a personal or household object, with or without geometric patterns), “postmodern”, “palimpsest”, or “liquid” personality. Let’s examine this last definition. Among the various theories that refer to the social and psychological condition of the postmodern adolescent, we find the definition of “liquid adolescence”, derived from the various analyses of Zygmunt Bauman, a Polish sociologist, who used the concept of “liquidity” in his numerous studies. This definition has been taken up and applied to postmodern adolescence by various authors, such as Casoni (2008).

We find ourselves in an era in which theorists of social development – be they sociologists, philosophers, historians, or otherwise – signal a paradigm shift in the constitution of subjectivities, both individual and collective, which is often defined through the contrast between the terms “modern” and “postmodern”. Within the spectrum of various critical theories, which in some way reference the postmodern description of the current social and human condition, the metaphor of “liquidity” coined by Bauman (2003, 2006, 2009) has been chosen to relate it to adolescence. Let’s see why. The sociologist compared the concepts of modernity and postmodernity to the “solid” and “liquid” states of society, respectively. According to Bauman, in modernity, morality is the coercive regulation of social action through the proposition of universal values or laws from which no reasonable person can escape. However, we cannot speak of a single postmodern morality because the end of the “grand narratives” of the twentieth century, that is, ideologies, has made the claim to absolute truth impossible. Thus, we find ourselves faced with a landscape inhabited by many coexisting moralities. Hence the metaphor of “liquidity”, contrasted with the social organization that is constituted through solid and solid principles of value. Postmodern man is deprived of a morality, a collective container, and, consequently, an absolute and unique code of social behavior. Uncertainty is his defining characteristic. Reading Bauman, it is easy to compare his description of the subject to the condition of contemporary adolescents, as the sociological specimens most indicative of the ongoing process of transformation. The condition of adolescence, due to its intrinsic characteristics of vitality and precariousness, clearly signals the impact of socio-cultural transformations on individuals. In this scenario, adolescence becomes the target population for investigating future social developments in their entirety, thus a sort of indicator of the “discomfort of modernity”. The crisis regarding the certainty and solidity of social and identity organizers therefore seems to define the condition of adolescence.

Plebani (2003) sees the problem of constructing youth identity as closely related to the historical and cultural moment in which it is considered. In the postmodern era, in which the foundations of traditional truth are in crisis, in which reality takes on an irrepressible character of contingency, while at the same time offering a surplus of opportunities, new forms of individuation and identification emerge, with a major shift in the ethical sphere.

Vegetti Finzi and Battistin (2000) see uncertainty as the term that best defines this period of life: adolescents' behavior is uncertain, as are parental roles, reference values, the temporal boundaries of adolescence, and even the possible psychological interpretation of it. The weakening of consolidated certainties, on the one hand, has led to an increase in the individual's sense of precariousness, but on the other, it has transformed the field of belonging, no longer characterized by exclusivity, but by plurality and mobility. This applies to belonging in both the private and social spheres. However, when uncertainty increases beyond a certain threshold and almost becomes identified with everyday life, the traditionally understood capacity for planning, that is, the long-term "life plan", is inevitably compromised (Leccardi 2005). The social acceleration and climate of uncertainty that characterize the "second modernity", in addition to challenging "long-term projects", also tend to modify the temporal structure of identity, influencing the processes of construction of the "Self".

Crespi (2002) highlights how young people are predisposed to react to the lack of certainty by developing responses that neutralize fears about the future, clearly expressing a tendency to embrace unpredictability. The new generations, therefore, seem to take into account the possibility of even sudden changes in direction and to develop responses in "real time", reacting to the unexpected. The speed and social rhythms of late modernity with which young people live allow them to "seize the moment" and address opportunities as they arise. For the new generations, the uncertainty of an unplanned future implies a predisposition to identify possible solutions from time to time. The innovative aspect that seems to characterize the new generations is represented by the "ability to accept the fragmentation and uncertainty of the environment as an inalienable fact, to be transformed into a resource thanks to a constant exercise of awareness and reflexivity" (Leccardi 2005, p. 57).

In contemporary society, this condition of liquidity is further amplified by the pervasive presence of digital environments and social media platforms (such as Instagram, TikTok, and digital communities). Recent studies emphasize that digital spaces function as a 'digital social mirror' where adolescents actively perform identity exploration, seek validation, and navigate online feedback (Pérez-Torres 2024). Rather than being mere tools for communication, digital platforms provide an expanded arena for self-presentation and role experimentation. However, active engagement in these platforms also exposes youth to continuous social comparison, context collapse, and the risk of identity fragmentation, requiring new forms of social reflexivity and digital literacy to convert online experiences into meaningful identity resources (Pérez-Torres 2024, Kochetova & Klimakova 2025).

Socialization and Adolescent Identity

Sociology's interest in the topic of adolescence is more recent than that of other disciplines; only recently has the term "sociology of childhood" been used, referring to the branch of sociology that deals with childhood and adolescence. At least initially, sociology seemed to follow in the footsteps of psychology, but sociological studies conducted tended to separate the different phases of the life

course and examine the specificities of each. Adolescence thus becomes a different and discontinuous state of life compared to adulthood, characterized by its own cultural specificity. From the earliest sociological studies, it was noted that adolescents are characterized by not having a permanent place within the structure of the social division of labor: “youth is a social entity that cuts across almost all social classes” (Cavalli 1980, p. 520). This social entity, typical of modern societies, is made up of those who have completed compulsory schooling and are not yet firmly established within the structure of the division of labor. In this diminished tension towards adult status, adolescence thus emerges as a condition, as a situation of waiting for an unimaginable outcome in which “unpredictability depends on the practically unlimited number of possible outcomes” (Cavalli 1980, p. 524), contrary to what happened previously, when for the majority of young people “the transition between childhood and adulthood was a gradual process without interruption, adult roles were learned and experienced early, almost always through the imitation of family or parental models” (Cavalli 1980, p. 520). In this regard, “aside from the variability of the phenomena in which it manifests itself, the youthful condition remains a suspended process, hesitation, absence of finality and identity, but also an often erratic search for finality and identity” (Cavalli 1980, p. 526). The consequences of the emergence of this new social entity have been assessed differently, but from the earliest studies there has been considerable agreement in emphasizing that adolescence fails to be effectively integrated, either in terms of values or social structure, in the absence of profound cultural and social transformations. Throughout the 1980s, young people and adolescents were variously defined as the “silent generation” (Inglehart 1983), the “everyday generation” (Garelli 1984), the “generation without fathers or teachers” (Ricolfi and Sciolla 1980). Even in the 1990s, they were still referred to as the “ecstatic” or “invisible generation” (Diamanti 1999). Thus, this strand of literature aims to emphasize the lack of role models in which young people find themselves living and the resulting attitude of flexibility and attention to the present, along with the exploitation of social relationships.

The tendency to make reversible choices, the loss of a sense of the future, and the complicit relationship with an increasingly collaborative family during the transition to adulthood are all signs of an adaptation strategy to the uncertain situation young people find themselves experiencing. Therefore, caution is needed in negatively characterizing the condition of adolescence. Invisible, silent, and ecstatic young people are the reflection of parents and educators who don’t know how to be adults, who have lost the responsibility of their adult roles (Diamanti 1999). Rather, the condition of adolescence is the product of the spirit of our times, incapable of valorizing and promoting adolescents’ abilities and skills, of making them social subjects (Ferrari Occhionero 2001). These positions highlight how the lack of clear and transparent expectations lies behind the youth issue and the negative image of young people, rather than generational conflict, which is instead part of the mechanism of generational dynamics whereby young people are very clear about the rules they transgress and are aware of what they are getting into (Cavalli 1985).

Given this interdependence, some sociological thought is geared toward highlighting the positive elements inherent in adolescence. According to Moro (1989), adolescents are growing citizens, individuals with developmental

responsibilities, but at the same time holders of rights with respect to which the adult world should adopt an attitude of promoting participation.

Despite the observations made on the possibility of understanding children as holders of subjective rights that can actually be exercised in their own right, there is now a general tendency to consider the centrality of the child and the adolescent in the processes of socialization through the introduction of the idea of the minor as an active subject capable of proposing transformations in the life of society and the vision of childhood and adolescence as social constructions (Prout and James 1997, Corsaro 2003, Favretto and Scivoletto 2003).

The renewed interest in childhood and adolescence is marked by the emergence of a new approach to study. While until a few years ago, children were viewed in sociological studies as objects of care or recipients of educational processes, recently the landscape has been enriched by the position that considers children and adolescents as active subjects. Indeed, sociological thought has viewed childhood and adolescence as closely linked to the family and socialization practices.

As highlighted in the English literature, on this topic it is now possible to envision a theoretical space in which children can be positioned as active social beings, capable of constructing and creating social relationships, rather than cultural objects as in classical socialization theory (Prout & James 1997). The outcome of this shift is a conception of childhood and adolescence as a set of actively negotiated social relationships through which the first years of human life are constructed. Behind this shift lies a departure from the positions expressed by functionalists and an embrace of a phenomenological perspective that enables the study of society by starting from the living conditions of social subjects, rather than by their division into groups or categories. The subject is inserted into a broader context of social relations that conditions them but, at the same time, provides meaning to their actions. The subject is therefore not the direct result of social structures and roles; nor does acknowledging a social character to the subject and the limits of the decision-making field within which they operate mean considering them a sort of puppet manipulated by external forces. Thus, socialization can be defined as “the process through which the helpless child gradually becomes a self-aware, prepared person, capable of effectively using the specific capabilities of the culture into which he or she was born” (Giddens 2000, p. 30). Central to this definition is the idea of considering individuals’ ability to act consciously to influence their own life context, and thus socialization loses its connotation of “cultural programming”, through which the child passively absorbs stimuli from the surrounding world.

We need to think of the image of the social actor as subject to social demands and capable of renegotiating roles and social conventions, that is, endowed with an identity that is simultaneously social, defined by recognition, and personal, defined by the expression of individual preferences (Sciolla 2000). In this regard, Dubar (2004) discusses social identity as the articulation of two transitions: one internal to the individual and the other external between the individual and institutions. These transitions contribute to establishing a sort of identity tension, resulting from the attribution of identity by institutions and the active incorporation of identity by the individual. In this way, identity becomes the subjective and objective outcome

of the various socialization processes that, together, construct individuals and define institutions. Identity configurations, the product of strategies implemented to reduce the gap between the two transitions, constitute relatively stable but evolving forms: “social identity is not transmitted from one generation to the next; it is constructed by each generation based on the categories and positions inherited from the previous generation but also through the identity strategies implemented in the institutions that individuals experience and which they contribute to concretely transform” (Dubar 2004, p. 148).

Through this definition, social identity, while maintaining a fluid and negotiable character, demonstrates a strong anchoring that prevents individual disorientation and the loss of social ties (Favretto 2004). In late-modern socialization, the interaction between individual agency and institutional expectations increasingly plays out within hybrid physical-digital peer cultures. Recent empirical reviews demonstrate that it is the quality and authenticity of social engagement on digital platforms - rather than the sheer amount of time spent online - that shapes identity commitment and self-concept clarity in adolescence (Pérez-Torres 2024). Peer groups operate as horizontal agents of socialization where identity is constantly displayed, evaluated, and renegotiated in real time.

Therefore, starting from studies on socialization, it is possible to affirm that identity is the product of a strategy: it is a process of self-organization and the construction of a life plan in which the individual must fulfill two tasks. The first, cognitive, task is linked to knowing how to locate oneself within one's social and cultural system; the other concerns the commitment to continually choosing between different alternatives in different fields of choice (Tonolo 1999).

From the individual's perspective, the need to process the conditions of uncertainty in which one lives and transform them into resources for action is increasingly pressing, precisely because the cognitive map handed down to us by previous generations and the institutions that confirm it are completely inadequate for the new demographic structure of the population and the new needs and behaviors that derive from it. Uncertainty arises from the fact that not only can one not identify stably over time, but at any given moment one cannot completely identify with just one of the parts and, therefore, must choose (Melucci and Fabbrini 1992). The risk, in this case, is the spread of individualistic attitudes and behaviors aimed at the pursuit of happiness through consumption, the collection of situations, the culture of self-realization with the consequent proliferation of ethical codes, behavioral pluralism and, in general, an increase in the scope of individual freedoms (Bauman 1998). However, it is necessary to remember that identity and the "Self" arise only in part from an individual process of adaptation and are instead linked to social actions and collective practices: they are rooted within a collectively produced culture (Corsaro 2003).

At this point, two categories emerge through which to analyze the condition of youth: that of reciprocity and that of time. As Abrams argued, in evaluating the historical and sociological relationship between the individual and society, “we must concentrate all our efforts on freeing ourselves from dualistic thinking, on escaping the allure of the belief that the individual has an essence different from that of society, or, conversely, that society and the individual constitute separate

realities” (Abrams 1983, p. 277). If society is understood as a historically produced configuration of interdependent individuals, “socially organized time becomes the common element in which social structure and identity are mutually generated” (Abrams 1983, p. 280). Time constitutes the dimension that traverses, connects, and unifies society and the individual, understood as different levels of a single human existential reality. Social time is a network of rules, and individuals, through the development of strategies, transform social time into individual time. The ways in which this transformation occurs are contained in individuals’ ability to manage their own time, that is, to transform social time into a living space within which to construct their own subjectivity (Cavalli 1985). “The analytical starting point here is biographical time, understood as that unitary temporal dimension that emerges as the outcome of the processes through which individuals relate to the past, live their present, and look toward the future. Personal identity, just like life time, is in fact the outcome of the dialectical relationship between permanence and changeability, between continuity and discontinuity, between past, present, and future” (Leccardi 2009, p. 76). Young people live their life phase in a social climate in which they have the right to choose who they become. A phase marked by the difficulty of identifying points of reference that help them escape uncertainty (Leccardi 2009). “In any case, the choice of these paths is never separated from the history that each person has behind them and from their concrete social belonging” (Smelser 1987, p. 67).

Conclusions

The analysis presented in this study demonstrates that adolescence cannot be reduced to a universal biological passage or a simple linear sequence toward adult autonomy. Instead, the evidence confirms that adolescence is a complex socio-cultural construction deeply intertwined with the structural transformations of late-modern societies. The primary theoretical findings indicate that the de-standardization of life trajectories and the pervasive climate of systemic uncertainty have transformed the youth transition into an open, highly reflective, and non-linear process. In this context, adolescents emerge not as passive or disoriented actors, but as active social subjects endowed with agency, capable of constantly renegotiating their identity and 'Self' within formal and informal socialization networks.

The theoretical contribution of this article lies in synthesizing heterogeneous analytical lenses - spanning symbolic interactionism, the sociology of time, and the social constructivism of youth - into a unified framework. By integrating the anthropological and demographic dimensions of cultural variation with the analysis of late-modern “liquidity”, this paper offers a holistic interpretation that moves beyond deficit-based or pathologizing views of youth, emphasizing instead the adaptive capacity and social reflexivity of contemporary adolescents.

Naturally, this study presents certain limitations. Given its qualitative and theoretical-critical nature, the analysis relies primarily on literature synthesis without incorporating primary empirical data. Furthermore, while addressing anthropological variations, the core discussion focuses predominantly on Western

post-industrial societies and does not fully detail the specific impacts of digital technologies and social media platforms on contemporary youth socialization.

Building upon these considerations, future research should focus on comparative and intersectional empirical investigations. Specifically, studies should examine how socio-economic background, gender, and ethnic origin intersect with digital spaces in shaping adolescent identity. Additionally, further research is needed to explore how recent demographic shifts - such as falling birth rates and prolonged cohabitation with parents - interact with evolving labor market dynamics to redefine the institutional and experiential boundaries of adulthood.

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AI at Work: Working Arrangements and Human–AI Collaboration

By Ari Hautaniemi*

This exploratory study examines how AI adoption and AI-related attitudes vary across private-office, open-plan, hybrid, and remote working arrangements among knowledge workers. Drawing on a cross-sectional online survey of knowledge workers (N=60), the study examined associations between four working arrangements and 18 AI-related Likert items using item-level contingency tables, Pearson's chi-square statistics, and Cramér's V. Because sparse expected frequencies were common, conditional Monte Carlo estimates were used as the primary inferential values. Six items showed nominal cross-arrangement associations according to Monte Carlo inference ($p < .05$), with three medium and three large observed association magnitudes. Three preliminary patterns emerged. First, hybrid and remote respondents reported regular AI use more often than private-office and open-plan respondents, and perceived task efficiency showed a similar descriptive distribution. Second, instrumental framing of AI as a task-support tool was widely endorsed across arrangements, whereas assistant-like and collaborative framings varied across groups. Third, the strongest observed associations were organisational: employer provision or permission to use AI tools and reported freedom over AI use both varied across working arrangements. The pattern suggests that organisational conditions, including AI provision and autonomy of use, may help explain higher reported AI use in hybrid and remote arrangements. However, the cross-sectional design cannot distinguish this interpretation from alternatives such as organisational digital maturity, occupational differences, or worker selection.

Keywords: *hybrid work; remote work; human–AI collaboration; workplace layout; knowledge work*

Introduction

Artificial intelligence (AI), particularly generative AI, has rapidly moved from an experimental novelty to an increasingly common feature of knowledge-intensive work. In occupations centred on writing, analysis, programming, research, coordination, and problem-solving, AI systems now draft texts, summarise information, support ideation, automate routine communication, and scaffold decision-making. Generative AI is no longer confined to technical specialists: professionals in software development, consultancy, and management report using these tools for productivity, learning, and task completion, while navigating issues of trust, professional identity, and human agency (Koponen, 2024). Emerging organisational research also indicates that generative AI can reshape collaboration patterns and knowledge flows rather than simply improve isolated individual

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productivity, making AI adoption a fundamentally social and relational process (Büchsenhuss et al., 2026). While the evidence of AI's impact on human collaboration is mixed and may yield both positive and adverse effects on, e.g., interaction and effectiveness (Vaccaro et al., 2024), human collaboration patterns are nevertheless being affected by AI as it takes on roles such as coordinator, creator, perfectionist, and doer, altering division of labour and expectations in teams (Siemon, 2022; Behnad & Hodjat, 2025).

This transformation has unfolded alongside another major shift in the organisation of work: the normalisation of remote and hybrid work arrangements after the COVID-19 pandemic. Knowledge-intensive sectors have moved from treating remote work as an exception to adopting stable hybrid models, even as many employers have sought to restore office attendance through return-to-office mandates (Bloom et al., 2024; Smite et al., 2022). These directives are often justified by claims about productivity, collaboration and culture, yet the evidence does not support a simple return-to-office orthodoxy. A major randomised field experiment found that hybrid work improved job satisfaction and reduced quit rates by roughly one third without harming performance or promotion prospects (Bloom et al., 2024). Practitioner commentary argues that generative AI further strengthens the case for hybrid and remote work by improving information sharing, coordination and productivity, while also raising concerns about cybersecurity, privacy, legal accountability and job displacement (Tsipursky, 2023). Flexibility, therefore, remains structurally embedded in many professional sectors despite public discourse about a universal return to office (Owl Labs, 2024). Jones and Asonye (2023) also found that during the COVID years, remote workers began using AI-mediated communication tools for collaboration, production and even emotional support. Some remote employees even became psychologically dependent on AI tools and struggled with interaction skills in slower, face-to-face processes when returning onsite, suggesting a preference for AI-assisted work.

These developments raise a timely question: how do working arrangements relate to employees' relationships with AI as a collaborator? The spatial organisation of work is not merely a background condition. Working arrangements are linked to variations in interruptions, privacy, visibility, social support, psychological safety, informal interaction and the experience of belonging. These dimensions are central to employee well-being and collaboration, and they are likely to influence whether AI is approached primarily as a tool, a source of cognitive support, a substitute for unavailable colleagues, or even a quasi-social companion. Research on open-plan offices, remote work and workplace well-being already suggests that different settings produce distinct social climates that affect concentration, connectedness and mental health (Kim and de Dear, 2013; Bernstein and Turban, 2018; Wells et al., 2023; Lyzwinski, 2024; Ramantswana et al., 2024).

Existing evidence also suggests that hybrid work and AI adoption should not be analysed separately. Both transformations reconfigure the socio-material infrastructure of knowledge work: who is visible to whom, how communication is routed, where informal learning occurs, and how workers access advice, evaluation and recognition (Smite et al., 2022; De Amicis, Soga and Bolade-Ogunfodun, 2024). In this sense, AI adoption is embedded within the same organisational reconfiguration as hybrid

work. The employee renegotiating office attendance may also be renegotiating the extent to which drafting, searching, summarising or feedback is delegated to AI systems. Workplace configurations should not be examined merely as work contexts, but as socio-material conditions that may be associated with the social meaning and practical use of AI.

These observations provide a strong rationale for the present study. If working arrangements are linked to social relatedness, privacy, interruptions, and support, they may also be linked to differences in the meanings, motives, and frequency of AI use in everyday work. It is therefore reasonable to hypothesise that, in open-plan environments, employees may turn to AI to compensate for noise, distraction, and the difficulty of sustained concentration. In remote settings, AI may become a more salient cognitive and affective partner when colleagues are physically absent and interaction is mediated through platforms. In more traditional office settings, workers may rely more readily on proximate colleagues and use AI in a more instrumental, task-bounded way. The present study therefore examines how traditional closed offices, open-plan offices, and remote home-based work relate to attitudes towards AI, patterns of use, and the broader social-psychological conditions of knowledge-intensive work.

Literature Review

The sociology of work treats workplace arrangements not as neutral containers but as socially organised environments that shape attention, interaction, norms and emotional experience. Physical layout and work location influence whether workers can regulate privacy, access support, withdraw from surveillance, sustain concentration, or experience recognition and belonging. These factors matter because collaboration and effectiveness are never purely individual achievements; they are mediated by social relations, expectations and shared meanings. In this sense, office design and work location can be understood as part of the sociomaterial infrastructure through which organisational life is enacted.

Theoretical Framing

A useful starting point is socio-technical systems theory (STS), originally formulated by Trist and Bamforth (1951), which holds that work outcomes emerge from the joint organisation of social subsystems, such as norms, trust, and role expectations, and technical subsystems, such as platforms, devices, and spatial layouts. The core thesis of STS is that neither technology nor working arrangements alone produce desired outcomes if the social-psychological aspects of the organisation are not properly addressed or understood, and vice versa (Taylor, 1975; Trist, 1981; Trist et al., 2013). Applied to hybrid work, this perspective shifts the analytical focus away from the simple question of whether remote or office work is better, towards how communication technologies, workplace design, and organisational routines jointly produce new forms of coordination and dependency (Smite et al., 2022). This is particularly relevant for AI, because AI tools do not

enter an empty social field: they are introduced into already-structured environments, including systems of authority, access, interaction, and evaluation.

Actor-network theory offers sharper insight by treating infrastructures not merely as supports for action but as participants in the assembly of organisational relations. De Amicis et al. (2024) argue that flexible working practices can surface hidden inequalities because the infrastructure itself helps distribute visibility, access to mentorship, and participation in informal networks. For this study, this means that workplace arrangements and AI systems should be conceptualised as co-constitutive elements of organisational life. They may structure what workers can do and how they are seen, supported, and connected.

Open-plan Workspace

Open-plan offices have long been promoted as spaces that increase transparency, spontaneous interaction and collaboration. They have been highlighted as transformative, enabling rapid organisational change and flattening hierarchies in a world where work is no longer tied to a single desk but is instead dynamic, team-based, and knowledge-intensive (Mohezar et al. 2021; Sailer and Thomas 2021; James et al. 2021). However, the empirical record is notably ambivalent, suggesting that the switch from cellular offices to open-plan workspaces is largely driven by economic incentives, namely fitting more people into less space. Yet financial benefits appear to be outweighed by the intangible costs stemming from the negative effects of open-plan offices (James et al. 2021). One of the most-cited intervention studies on open workspaces found that when two organisations shifted to open-plan layouts, face-to-face interaction declined by about 70 per cent. At the same time, email and instant messaging increased, suggesting that heightened visibility may provoke withdrawal rather than sociability (Bernstein and Turban, 2018). This finding challenges the assumption that spatial proximity automatically produces social connectedness. Instead, workers appear to manage exposure by reducing unscripted interaction when they feel too visible or interruptible.

Research into the psychosocial effects of office design reinforces this tension. James et al. (2021) and Kim and de Dear (2013) found that occupants of open-plan offices reported lower satisfaction than those in private offices across several dimensions, particularly sound privacy. Weziak-Białowolska et al. (2018) similarly linked open-plan environments to irritability and poorer job performance, while Mache et al. (2020) associated flexible work arrangements in open-plan spaces with occupational stress and impaired psychological detachment. Sailer and Thomas (2021) found that staff are less likely to view their workplace positively when they see more desks around them and when they face away from the room, with more space behind them than in front. In such spaces, sharing information, feeling part of the team, and working well together also suffer. Concentrated work and getting things done are further impaired. More recent qualitative research reports that open-plan offices can support teamwork, accessibility, and inclusivity while also compromising privacy, shortening attention spans, increasing stress, and lowering perceived productivity (Ramantswana et al., 2024). Open-plan settings may thus intensify ambient sociality while weakening the

forms of secure, voluntary, and focused interaction that sustain both well-being and effective collaboration.

These features are directly relevant to AI use. In noisy, interruption-heavy environments, AI tools may be attractive as controllable supports for drafting, summarising, or brainstorming, allowing workers to create a temporary zone of cognitive insulation when sustained concentration is difficult. Yet the same tools can deepen dependence on mediated work and make AI use more publicly legible, thereby intensifying impression management. Open offices may therefore be associated with AI use through task conditions, visibility, legitimacy, and local norms.

Working Outside the Office

Remote work is often associated with autonomy, flexibility and relief from commuting, but its psychosocial consequences are mixed. A systematic review by Wells et al. (2023) found that, across studies, remote working was linked to both improved well-being and adverse outcomes, such as technostress, exhaustion and loneliness, depending on work demands and available resources, consistent with the JD-R model. A 2024 scoping review likewise concluded that remote work can be experienced positively, but that isolation and loneliness remain recurrent risks, while managerial support, collegial contact and a functional home workspace act as important protective factors (Lyzwinski, 2024). In other words, remote work can increase autonomy without guaranteeing social integration.

To understand these effects sociologically, Granovetter's (1973) strength-of-weak-ties perspective and broader social-capital theory are particularly useful. Weak, bridging ties are important because they connect otherwise separate groups and circulate new information across organisational boundaries. In the context of hybrid and remote work, this lens suggests that collaboration may remain formal while becoming less generative within networks. Yang et al. (2022) provide the benchmark finding here: firm-wide remote work at Microsoft made the collaboration network more static and siloed, reduced bridging ties across groups, and shifted communication from synchronous to asynchronous forms. Wu et al. (2023) extend this argument by showing that misalignment in employees' perceived ease of use of communication tools predicts the dissolution of advice-seeking ties, especially when workers spend more time working remotely.

These findings matter because they suggest that the costs of remote work extend beyond individual loneliness; they also include the erosion of relational infrastructures through which information, recognition, and innovation circulate. This is especially important for hybrid work. Hybrid schedules may preserve many of the retention and satisfaction benefits identified by Bloom et al. (2024), yet their organisational value depends partly on whether office time actually reproduces bridging, mentoring, and ritual participation rather than merely reintroducing surveillance or commuting burdens. Finnish evidence reinforces this point. Alasoini's (2025) ethnographic study of software firms identifies a 'hybrid-era control deficit' arising from fewer face-to-face encounters, difficulties with online communication, and weakened participation in organisational rituals.

The social-psychological significance of remote and hybrid work lies in the restructuring of co-presence. When workers are physically separated, interaction

becomes more scheduled, platform-mediated and textually documented. Collegial support may feel less immediate, informal reassurance declines, and peripheral awareness weakens. Under these conditions, AI may become a more salient source of rapid feedback, cognitive offloading and conversational simulation. Research on generative AI in knowledge-intensive work suggests that workers value these systems for idea generation, drafting and personalised assistance, especially when local human support is scarce (Koponen, 2024). Tsipursky (2023) similarly argues that AI-enhanced tools can improve coordination, knowledge access and remote teamwork, while warning that their wider use may heighten cybersecurity and privacy risks if organisations do not govern them carefully.

Traditional, Closed Offices

Traditional and closed offices receive less attention in current debates because they are often treated as the implicit baseline against which open-plan and remote models are compared, typically as attempts to improve them. Yet they remain analytically important as distinct social settings. Compared with open-plan layouts, private or cellular offices generally offer more privacy, fewer distractions, and greater control over exposure to others, which can support concentration and reduce stressors associated with interruptions (Kim and de Dear, 2013). Compared with home-based work, traditional offices offer greater direct access to colleagues, supervisors, and organisational routines, including informal help-seeking and unplanned interactions. However, they may also limit flexibility and individual control over where and when work is performed, especially when attendance requirements are rigid or commuting demands are substantial.

From a social-psychological perspective, the traditional office may therefore foster a distinct ecology of collaboration. Workers may experience stronger boundaries between work and non-work than at home, while also retaining more opportunities for immediate collegial consultation than remote workers. This does not necessarily make traditional offices superior in all respects; rather, it suggests that AI use may be reported as more instrumentally bounded there. If human support is physically available and interruptions are more manageable than in open-plan spaces, AI may be used more as a supplementary tool than as an alternative interaction partner.

Job Demands, Resources and Trust in AI

The Job Demands-Resources (JD-R) model links structural conditions to experienced strain, motivation and performance. In this framework, well-being depends on the balance between job demands, such as workload, emotional pressure, interruptions and technostress, and job resources, such as autonomy, social support, feedback and meaning. Hybrid work is theoretically important because it often increases autonomy while introducing new demands, including digital isolation, blurred role boundaries and coordination overload (Stasiła-Sieradzka et al., 2023; Hopkins and Bardoel, 2023).

This framework can be productively extended to AI adoption. Marimon et al. (2024) propose that trust in generative AI mediates the relationships between AI

adoption and work engagement and performance. This is highly relevant to the present study, as trust is unlikely to develop independently of working arrangements. In an open-plan office, trust in AI may be shaped by pressure to avoid interruptions and by visibility to others; in remote work, by the relative absence of immediate collegial support; and in traditional offices, by the ongoing availability of human comparison points. A JD-R perspective, therefore, helps explain why the same AI system may be experienced as empowering, stressful, reassuring, or unnecessary, depending on the broader relational environment.

The literature on human-AI collaboration increasingly argues that AI should be understood not only as automation but as a participant in strategically distributed work systems. Reviews of human-AI collaboration emphasise that successful collaboration depends on the dynamic fit between human judgement and AI capabilities, including trust, task allocation, interpretability, and opportunities for mutual adaptation (Liu et al., 2024; Bankins et al., 2024). Fischer and Schellenbach (2026) show that users' willingness to trust AI systems depends not only on technical reliability but also on social cues and contextual evaluation factors. Organisational research similarly suggests that AI can alter not only how tasks are completed but also how people interact, share knowledge, and perceive one another's contributions (Büchsenschuss et al., 2026).

Recent productivity research reinforces the need for a socially differentiated view of AI. Generative AI often yields substantial average gains, but these gains are heterogeneous across tasks, sectors, and skill levels. Haase et al. (2026) found that ChatGPT is widely embedded in knowledge-intensive work, but mainly as a complementary collaborator rather than a replacement for human expertise. Across coaching, IT programming, and academic research, professionals valued ChatGPT most for structured, content-heavy tasks such as ideation, coding support, writing, synthesis, and information processing, while relational, interpretive, and authenticity-sensitive work remained strongly human-led. Brynjolfsson, Li, and Raymond (2023) found strong productivity improvements in customer support, especially among less experienced workers; Noy and Zhang (2023) reported faster, higher-quality writing among college-educated professionals; and Peng et al. (2023) showed major efficiency gains in programming tasks with GitHub Copilot. Sowa et al. (2021) found that human-AI collaboration, rather than full automation, increases productivity in managerial tasks.

Practitioner analysis reaches a similar conclusion: AI can free workers from repetitive tasks, improve coordination and support knowledge management, but it can also intensify concerns about privacy, surveillance, legal accountability and job displacement (Tsipursky, 2023). While AI adoption in organisations may enhance efficiency, it also presents challenges, including employee resistance, ethical concerns about data management, algorithmic bias, and fear of losing one's job and status to AI (Mirbabaie et al., 2022). To address these questions, organisational decision-makers should ensure that AI adoption aligns with organisational culture and values (Murire, 2024; Soulami et al., 2024). Other studies likewise indicate coordination trade-offs, uneven effects for experienced users, and shifting skill demands, including greater emphasis on higher-order cognitive skills and less emphasis on certain social skills (Song et al., 2024; Kreitmeir and Raschky, 2024; Gulati et al., 2025).

Working with generative AI improves immediate task performance, but when people switch back to solo work, they report lower intrinsic motivation and greater

boredom, even though they feel more in control (Wu et al., 2025). Collaboration with GenAI can also heighten feelings of disconnection from one's work, which in turn leads to corner-cutting behaviours and doing the bare minimum. Increased interaction with AI systems rather than people can also lead to feelings of isolation, increased fatigue resulting in insomnia, and even increased alcohol use (Tang et al., 2023).

Although the long-term impacts of increasing AI use are unclear, largely because the technology is only a couple of years old, it seems to be creeping into traditionally human endeavours. A study by Behnad and Hodjat (2025) found that AI-generated treatment plans in therapy supervision settings were statistically comparable to those created by human professionals across multiple therapeutic modalities, particularly for structured tasks such as diagnostic support, treatment formulation, goal setting, and intervention planning. The findings suggest that AI may increasingly extend into knowledge-intensive and human interaction-related professions by augmenting analytical and content-focused work rather than replacing human expertise entirely.

In fields such as counselling, therapy, and coaching, AI appears particularly promising as a support tool for supervision, reflection, training, and preparation, especially in contexts with limited access to human experts. However, authenticity, relational trust, ethical responsibility, and emotional attunement remain distinctly human dimensions that continue to require professional oversight and judgement (Behnad & Hodjat, 2025).

In sociological analyses of relationships, AI is not merely a tool but a multifaceted actor that redistributes dependence, expertise, status and collaborative burden. The most useful way to conceptualise AI in this context is neither as an autonomous actor nor as a neutral instrument, but as a socio-technical mediator whose meaning depends on situated use. Workers may relate to it instrumentally, strategically, defensively or affectively, depending on whether they seek efficiency, privacy, reassurance, creativity or compensation for missing support. This study argues that working arrangements may be associated with the relational context in which AI is encountered and made meaningful.

Research Gap

Taken together, the literature points to a clear gap. Research on working arrangements shows that office layout and work location affect privacy, interruptions, belonging, stress, and collaboration patterns (Kim and de Dear, 2013; Bernstein and Turban, 2018; Wells et al., 2023; Lyzwinski, 2024; Ramantswana et al., 2024). Research on hybrid work shows that retention and satisfaction benefits can coexist with more static, siloed collaboration networks, especially when bridging ties and organisational rituals are not actively maintained (Bloom et al., 2024; Yang et al., 2022; Alasoini, 2025). Research on human-AI collaboration shows that AI adoption influences knowledge work, trust, organisational networks, and perceptions of agency, while also generating heterogeneous productivity gains and shifting skill demands (Koponen, 2024; Büchschuss et al., 2026; Liu et al., 2024; Brynjolfsson, Li and Raymond, 2023; Gulati et al., 2025). Yet this literature has rarely been brought into direct conversation. There remains limited empirical understanding of how the social

and spatial organisation of work shapes the meanings and uses of AI in everyday knowledge-intensive work.

The present study addresses this gap by comparing traditional closed offices, open-plan offices, hybrid arrangements, and home-based remote work. It asks how patterns of AI use and employees' attitudes towards AI vary across these settings, with particular attention to social support, interruptions, privacy, psychological safety, and social connectedness. In doing so, the study contributes to organisational sociology by exploring how material arrangements shape socio-technical practices, and to social psychology by examining how workers' perceived relational environments condition their orientation towards AI as a collaborator.

Methodology

The data analysed here come from a self-administered online questionnaire on AI use, workplace layout, and collegial relations among knowledge workers, hosted on the Webropol platform and distributed through professional and academic networks in the first half of 2026. Participation was voluntary and anonymous. The instrument combined demographic items, fixed-response items on workplace layout and working arrangements, 50 five-point Likert items covering AI use, collegial relations, and workplace climate, two ten-point sliders, and one open-ended question.

A total of 60 valid responses were obtained. The realised sample comprises a small, predominantly Northern European group of knowledge workers (Table 1).

Table 1. *Sample Composition (n = 60)*

Characteristic	Categories (n)
Working arrangement	Remote 23; Hybrid 20; Private office 10; Open-plan office 7
Country	Finland 38; Estonia 7; other European 14 (1–2 each); United States 1
Gender	Male 35; Female 22; Missing/Prefer not to say 3
Age group	45–54: 22; 35–44: 14; 25–34: 14; 55–64: 7; Under 25: 2; 65+: 1
Education	Master 26; Bachelor 21; Doctorate 7; Secondary 4; Other 2
Organisation size	1–10: 26; 251–1000: 18; 11–50: 9; 51–250: 7
Role	Employee 29; Freelancer/Entrepreneur 12; Manager 9; Team lead 6; Other 4
Industry (top three)	Education/training/research 13; ICT/software/games 11; Design/Creative 11
Working language	Both/multilingual 34; Local language 19; English 7
Remote workdays/week	M = 3.00 (SD = 2.02); median 3

The sample skews towards Finnish respondents (63%), employees and freelancers in micro and small organisations, and a balanced age distribution between 25 and 54. Hybrid and Remote arrangements together account for 72% of

respondents, consistent with the post-pandemic distribution of knowledge work in Northern Europe (Eurofound, 2022). Open-plan workers ($n = 7$) constitute the smallest group, a limitation discussed below.

The realised sample size places the present analysis at the exploratory end of the analytic spectrum (Tukey, 1977; Lakens, 2022). The findings reported in the following sections are intended to identify candidate patterns and directions of association rather than to support definitive inferential or causal claims. They will be tested confirmatorily in a planned second wave of the research (target $n > 100$).

Methods

The analysis examines whether AI adoption and attitudes towards AI vary across four workplace-layout settings: private offices, open-plan offices, hybrid arrangements, and remote home-based work. The analytical strategy is item-level cross-tabulation: each of the 18 AI-related survey items is tested independently against the four-category working-arrangement variable. No composite sum scores or scale aggregates were computed. This choice was deliberate. Given the study's exploratory character and small sample size ($N = 60$), the analysis neither assumes nor attempts to confirm that items within a block measure a single latent construct. Instead, each item is treated as a self-standing indicator of a specific attitude or behaviour, and the blocks serve as organisational devices that make the pattern of results easier to read and interpret (de Vaus, 2014; Tukey, 1977).

Item grouping

The 18 items were grouped a priori into five conceptual blocks based on theoretical content. The groupings were defined before any analysis and reflect the study's conceptual framework rather than a data-driven procedure such as factor or cluster analysis. The five blocks are as follows. *Adoption* comprises one item measuring the frequency of regular AI use in work tasks. *Purposes* comprises seven items covering the perceived effects of AI on task efficiency, creative quality, written communication, cognitive structuring, idea generation, routine task handling, and dependence on AI tools. *Framing* comprises four items capturing the metaphors through which respondents conceptualise their relationship with AI: as a task-support tool, an assistant for idea exploration, something that feels collaborative, and a constructive collaborator in knowledge-intensive work. *Self-efficacy and Autonomy* comprise two items measuring confidence in using AI effectively and the extent to which AI has enabled more independent work. *Organisational Context* comprises four items covering organisational provision of AI tools, individual freedom to decide whether and how to use them, workplace encouragement of AI experimentation, and organisational guidance on responsible use.

Post hoc internal consistency estimates were calculated to characterise inter-item coherence within each block. The Purposes block ($\alpha = .844$) and the Framing block ($\alpha = .819$) showed good internal consistency, suggesting that the items within these blocks tap a sufficiently unified dimension. By contrast, the Organisational Context block ($\alpha = .570$) and the Self-efficacy and Autonomy block

($\alpha = .446$) showed weaker coherence, reflecting theoretically related but empirically distinct aspects of each group's AI use: policy and access versus freedom of use in the former, and perceived capability versus behavioural independence in the latter. These results confirm that the blocks are best understood as theoretically motivated thematic groupings rather than psychometrically validated scales, and they are treated as such throughout the analysis.

Response Recoding

Each five-point Likert item was collapsed into three ordered categories: Disagree (1–2), Neutral (3), and Agree (4–5). This recoding was applied to improve cell frequencies in the contingency tables, which, with 60 responses across four working-arrangement groups, would otherwise yield prohibitively sparse cells in a full five-category analysis. Collapsing ordered Likert-type responses is a common pragmatic strategy in small-sample exploratory survey analysis, although it necessarily reduces response-level detail and should be applied transparently (Jamieson, 2004; Sullivan and Artino, 2013; Koo and Yang, 2025; Liu et al., 2025).

Missing Values

Responses outside the defined 1–5 Likert scale were treated as missing. In the raw survey export, a small number of later-item responses were coded as 0, even though 0 was not a questionnaire response option. These values were therefore not interpreted as disagreement, neutrality, or a substantive response category. Analyses were conducted using valid responses for each item, with item-specific valid N reported in the results tables.

Statistical Tests

For each of the 18 AI-related items, a 3×4 contingency table (three recoded response categories by four working-arrangement categories) was analysed using Pearson's chi-square test of independence. The nominal degrees of freedom were 6. Pearson's chi-square statistic is a standard method for assessing association between categorical variables, and Cramér's V was calculated as a sample-size-adjusted measure of association magnitude (Agresti, 2018; Field, 2018; McHugh, 2013).

The conventional large-sample approximation for Pearson's chi-square test requires sufficiently large expected cell frequencies. This condition was not consistently met in the present data, as $N=60$ was distributed across four unequal working-arrangement groups, including an open-plan group of seven respondents. Across the 18 3×4 tables, expected cell frequencies below five were common. Therefore, the asymptotic chi-square probabilities should not be treated as the primary basis for inference in this study (Agresti, 1992, 2018; Field, 2018; McHugh, 2013). To address sparse expected frequencies, conditional Monte Carlo estimates of the exact probability were calculated from 100,000 random contingency tables generated under the null hypothesis of independence, while retaining the observed row and column margins. The estimated probability is the

proportion of simulated tables with a Pearson chi-square statistic at least as large as the observed statistic. This approach avoids reliance on the asymptotic chi-square approximation and provides a 99% confidence interval for simulation uncertainty around the estimated probability (Agresti, 1992, 2018; Mehta and Patel, 2025). Pearson chi-square statistics and their asymptotic probabilities are reported for comparability, whereas the Monte Carlo probabilities are treated as the primary inferential values.

This approach is preferable to relying solely on the large-sample chi-square approximation when contingency tables are sparse (Mehta and Patel, 2025). However, it does not address the substantive limitations associated with small subgroup sizes: the resulting estimates, including Cramér's V , remain sensitive to individual responses and are interpreted as exploratory rather than definitive. The use of Monte Carlo inference therefore improves the appropriateness of the probability calculation but does not increase the design's statistical power or generalisability.

Statistical significance was evaluated at the conventional unadjusted threshold of $\alpha = .05$. Given the study's exploratory purpose, the inferential results are used solely as a screening device to identify potential patterns rather than as definitive hypothesis tests. Effect-size magnitude, descriptive response distributions, theoretical coherence, and the study's design limitations are considered together when interpreting results. This approach aligns with the broader recommendation that empirical interpretation should not rest on a binary significant/non-significant distinction alone (Lakens, 2013; Wasserstein and Lazar, 2016).

Cramér's V was calculated as a sample-size-adjusted measure of association magnitude (Agresti, 2018; McHugh, 2013). Following conventional benchmarks for contingency-table associations, values of approximately .07, .21, and .35 were interpreted as small, medium, and large, respectively (Cohen, 1988; Kim, 2017). Accordingly, values from .331 to .347 are described as medium observed associations, whereas values from .370 to .509 are described as large observed associations. These benchmarks are used as interpretive guides rather than rigid substantive thresholds, particularly given the small and uneven group sizes in the present exploratory sample. Analyses were conducted in IBM SPSS Statistics version 32.0.

Results

Six of the 18 AI-related items produced both asymptotic and Monte Carlo probabilities below .05. Because sparse expected frequencies were common and the conventional conditions for the asymptotic Pearson chi-square approximation were not consistently met, conditional Monte Carlo probabilities were treated as the primary inferential values: across the six items shown in Table 2, between 58% and 75% of expected cells were below five.

Based on the effect-size thresholds specified in the Methods, three associations had large observed effect sizes, and three had medium observed effect sizes. The six items represented four conceptual blocks: Adoption, Purposes, Framing, and Organisational Context (Table 2).

Table 2. *AI Items with Nominal Cross-arrangement Associations ($df = 6$)*

Block	Item (full questionnaire wording)	N	Chi-square p	Monte Carlo p	V
Org context	"My organisation provides or allows the use of AI tools."	60	<.001	<.001	.509
Framing	"Interacting with AI can feel like a collaborative work process."	59	.013	.011	.370
Org context	"I am free to decide whether and how I use AI tools in my work."	59	.011	.010	.375
Purposes	"AI tools help me complete my work tasks more efficiently."	60	.041	.036	.331
Adoption	"I regularly use AI tools as part of my work tasks."	60	.025	.023	.347
Framing	"I sometimes use AI as an assistant to explore or develop ideas."	58	.038	.036	.339

The full cross-arrangement column percentages for the six items with nominal Monte Carlo associations are presented in Table 3.

Table 3. *Percentages of Agreement (Likert 4–5) by Working Arrangement for Six AI Items with the Strongest Cross-arrangement Associations*

Item (abbreviated)	Private (N=10)	Open-plan (N=7)	Hybrid (N=20)	Remote (N=23)
Regularly use AI tools at work	30%	43%	80%	70%
AI helps complete tasks more efficiently	50%	57%	90%	83%
Interacting with AI feels collaborative	20%	57%	53%	57%
Use AI as an assistant for ideas	40%	33%	74%	74%
Organisation provides/allows AI tools	30%	71%	90%	91%
Free to decide whether and how to use AI	70%	57%	100%	86%

For comparison, the items showing no significant association include all six remaining purpose items ("AI tools enhance the creativity and quality of my work"; "I sometimes use AI tools to help structure or clarify my thinking"; "I mainly use AI tools for generating or refining ideas"; "I mainly use AI tools for repetitive or administrative tasks"; "AI tools have improved the clarity of my written communication at work"; "Losing access to AI tools would significantly impact my work"), both self-efficacy items ("I feel confident in my ability to use AI tools effectively"; "AI tools allow me to work more independently than before"), and the more instrumental tool-framing item ("I mainly view AI as a tool that supports my work tasks"), which is endorsed by 88% of respondents (52/59, as one respondent has a missing value on the item) and shows no statistically significant cross-arrangement association ($V=.184$, Monte Carlo $p=.690$).

Discussion

Four preliminary trends emerge from the pattern of nominal cross-arrangement associations and the null findings.

Trend 1: Regular AI use and perceived task efficiency appear more common in hybrid and remote arrangements in this sample. Agreement that AI tools were regularly used in work tasks was higher among respondents in hybrid (80%) and remote (70%) arrangements than among those in private (30%) and open-plan offices (43%). Perceived efficiency showed a similar descriptive pattern, with agreement reported by 90% of hybrid respondents, 83% of remote respondents, 57% of open-plan respondents, and 50% of private-office respondents. Both nominal associations had medium observed magnitudes: $V=.347$ for regular AI use and $V=.331$ for perceived task efficiency. The convergence of these two items is consistent with greater reported AI integration among hybrid and remote respondents in this sample. However, it does not establish that working away from a fixed office increases AI integration, as organisational AI provision, job role, industry, and worker selection may also account for the observed pattern.

From a JD-R perspective, this pattern aligns with the view that spatially flexible work is associated with both autonomy and coordination demands, particularly when AI becomes a salient resource for managing workload and information flow (Hopkins and Bardoel, 2023; Stasiła-Sieradzka et al., 2023).

Trend 2: Instrumental AI framing appears widespread, whereas assistant-like and collaborative framings vary across working arrangements. The instrumental framing ("I mainly view AI as a tool that supports my work tasks") serves as a near-ceiling baseline across all groups ($V = .184$, n.s., 88% agree overall). The collaborative-process framing ("Interacting with AI can feel like a collaborative work process", $V = .370$) varies across arrangements: agreement is reported by 20% of private-office respondents, compared with 53% of hybrid, 57% of remote, and, interestingly, 57% of open-plan respondents. The 4/7 agreement rate in the open-plan subgroup is descriptively notable but highly uncertain given the small group size. It is tentatively compatible with research showing that open workspaces may reduce face-to-face interaction and increase reliance on mediated

communication (Bernstein and Turban, 2018), but this possible connection requires direct testing in a larger and better-balanced sample.

By contrast, AI used as an assistant for idea exploration ($V = .339$) was most common among hybrid and remote respondents (74% each), compared with 33–40% in office-based settings. The absence of statistically significant cross-arrangement associations for specific use purposes suggests that the observed patterns may reflect relational framing and reported integration more than the task mix to which AI is applied. Given the sample size and exploratory design, this interpretation remains tentative. Office-based workers, particularly those in private offices, accept the tool framing but are less likely to endorse the partner framing. This descriptive pattern among hybrid and remote respondents is broadly consistent with recent evidence that human–AI 'teammate' roles emerge most strongly in digitally mediated, asynchronous, and content-heavy work settings (Siemon, 2022; Vaccaro et al., 2024; Haase et al., 2026).

Trend 3: Organisational provision or permission to use AI appears to be the strongest observed cross-arrangement association. The strongest association concerned organisational provision or permission to use AI tools ($V=.509$): agreement was reported by 90% of hybrid and 91% of remote respondents, compared with 30% of private-office respondents. Reported freedom to decide whether and how to use AI also varied across arrangements ($V=.375$): 100% of hybrid, 86% of remote, 70% of private-office, and 57% of open-plan respondents agreed. By contrast, confidence in using AI effectively did not show a statistically significant cross-arrangement association ($V=.213$, Monte Carlo $p=.508$). These organisational patterns are consistent with evidence that remote- and hybrid-friendly organisations may also invest more heavily in digital infrastructure, including AI-enabled tools (Smite et al., 2022; Owl Labs, 2024). However, the present data cannot determine whether organisational infrastructure explains the observed associations.

These three trends are mutually consistent and point to a single preliminary interpretation: working arrangements and AI adoption co-vary primarily because spatially distributed work and organisational AI maturity tend to co-occur in this sample, not because remote work makes individual workers more AI-capable. Whether this reflects an organisational selection effect (AI-mature organisations adopt remote-friendly policies), a worker selection effect (digitally fluent workers self-select into Hybrid/Remote roles), or a confounding role-and-industry effect cannot be resolved with the present data and is an explicit objective of the planned phase 2 research.

A fourth, cross-cutting observation concerns the null findings. The absence of statistically significant cross-arrangement associations for specific use purposes and self-efficacy items suggests that the observed cross-arrangement patterns may be selective rather than pervasive. The tasks to which AI is applied appear to reflect the general demands of knowledge-intensive work rather than the conditions of any particular workspace: workers across all four arrangements draw on AI for the same functional repertoire, consistent with prior findings that generative AI is primarily used for idea generation, drafting, coding support and information processing across sectors, regardless of setting (Koponen, 2024; Haase et al., 2026). Similarly, confidence in using AI effectively does not vary by arrangement, providing no

evidence in this sample that AI self-efficacy varied systematically across the four working arrangements. The study cannot determine whether self-efficacy is primarily related to individual learning, prior digital experience, organisational context, or other factors. These null results help delimit the observed patterns, but they should not be interpreted as ruling out capability-based or task-mix-based explanations. The sample is too small to establish the absence of practically meaningful associations.

Conclusions and future implications

This study examined how employees' relationships with AI in knowledge-intensive work vary across working arrangements. The cross-tabulation of eighteen AI-related items against the four-category working-arrangement variable yields a small but coherent set of findings. Instrumental framing of AI was widely endorsed in this sample, whereas reported regular use, selected collaborative framings, and organisational conditions varied across working arrangements. These patterns are exploratory, cross-sectional associations and cannot establish whether the work arrangement itself produces differences in AI use or whether organisational infrastructure, occupational composition, or worker selection account for the observed variation.

The six nominal cross-arrangement associations comprised three medium observed associations—regular AI use ($V=.347$), perceived task efficiency ($V=.331$), and AI use as an assistant for ideas ($V=.339$)—and three large observed associations—collaborative AI framing ($V=.370$), autonomy over AI use ($V=.375$), and organisational provision or permission to use AI tools ($V=.509$).

Three preliminary patterns summarise the results. First, regular AI use was reported by 30% of private-office respondents, 43% of open-plan respondents, 80% of hybrid respondents, and 70% of remote respondents; perceived task efficiency followed a similar pattern. These medium-sized observed associations do not establish that greater remoteness increases AI adoption. Second, instrumental AI framing was widely endorsed across arrangements, while assistant-like and collaborative framings varied across groups. Third, the largest observed association was organisational: employer provision or permission to use AI tools varied strongly across working arrangements ($V=.509$), and reported freedom to decide whether and how to use AI also varied ($V=.375$). Confidence in using AI effectively did not show a statistically significant cross-arrangement association ($V=.213$, Monte Carlo $p=.508$).

Taken together, these findings are consistent with (but do not demonstrate) an organisational-infrastructure interpretation of the observed variation in AI use. Theoretically, this pattern aligns better with a socio-technical and actor-network reading of the workplace than with a purely spatial one. In this sample, the clearest differentiating “actors” were not a particular physical feature of the workspace but rather reported organisational provision or permission to use AI tools and freedom over their use. This is consistent with De Amicis et al.'s (2024) argument that infrastructures actively distribute access and visibility rather than passively support work. It is also consistent with a JD-R reading in which autonomy operates as a

job resource: hybrid and remote respondents in this sample more often reported freedom to decide whether and how to use AI. This pattern is compatible with a JD-R interpretation in which autonomy may function as a resource supporting experimentation and integration of new tools, but that mechanism requires direct testing (Hopkins and Bardoel, 2023; Stasiła-Sieradzka et al., 2023).

The findings also nuance two recurring claims in current debates. The first is the assumption, often made in defence of return-to-office mandates, that office presence is the natural infrastructure for innovation and adaptation. In this sample, private-office respondents reported lower regular AI use and less endorsement of selected assistant-like or collaborative framings than hybrid and remote respondents, while AI self-efficacy did not show a statistically significant association across arrangements. If hybrid arrangements are correlated with both retention benefits (Bloom et al., 2024) and AI maturity, these exploratory patterns do not establish that office presence impedes AI adoption and should not be used alone to evaluate return-to-office policies. They nevertheless indicate that future research on workplace policy should consider organisational AI provision, role composition, and digital-work infrastructure alongside physical attendance requirements. The second is the assumption that AI use erodes workplace social ties. Items measuring collegial relations, support, and culture were not associated with AI engagement in the present analysis, consistent with treating AI as a socio-technical participant in distributed work rather than a substitute for human collaboration (Liu et al., 2024; Büchsenschuss et al., 2026).

Growing evidence shows the detrimental impacts of increased human-AI collaboration on well-being and social connectedness (e.g., Tang et al., 2023; Shalu et al., 2025). Although the present study did not test whether remote work leads to heavier AI use or whether AI use affects well-being, the descriptive pattern warrants examination in future longitudinal research. If generative AI is increasingly adopted as a collaborator in hybrid and remote work, how do we ensure these circumstances don't exacerbate societal problems in the long run? Humans are hyper-social beings who need belonging, reflect on themselves, and build their identities in relation to other *people* (Van Bavel and Packer, 2021). Even if AI could fulfil the functional role of a colleague or even a team of coworkers, it remains merely a digital imitation of human interaction.

Limitations

At least two limitations must be considered when interpreting these results. First, the small and uneven working-arrangement groups limited statistical power and produced sparse contingency tables. The open-plan group contained only seven respondents; consequently, a single response changes its within-group percentage by approximately 14 percentage points. In the focal 3×4 tables, many expected cell frequencies were below five. Conditional Monte Carlo inference was therefore used to avoid relying on the asymptotic chi-square approximation. However, this procedure does not eliminate the uncertainty arising from small subgroup sizes, stabilise Cramér's V estimates, or transform the findings into generalisable estimates. The reported associations should therefore be treated as preliminary and exploratory.

Second, the country composition (63% Finland) and over-representation of micro-organisation workers and freelancers limit external generalisability. The patterns reported here are provisional initial directions; their robustness will become testable as the second wave of data collection moves the sample beyond the $n > 100$ threshold and balances the layout, country, and organisation-size cells.

Other caveats also apply to the research at hand. The co-occurrence of layout and organisation cannot be disentangled using cross-sectional data of this size. Whether the pattern of increased AI use reflects organisational selection (AI-mature employers adopt remote-friendly policies), worker selection (digitally fluent workers self-select into hybrid and remote roles), or a confounded role-and-industry effect is precisely the question the planned Phase 2 will address. With a target of $n > 100$ and balanced cells across layout, country, and organisation type, regression-based modelling with covariate adjustment will allow the relative contributions of working arrangements and organisational AI provisioning to be estimated separately.

Yet two implications follow for practice and policy. For organisations, the exploratory findings raise questions about whether employees across working arrangements have equitable access to approved AI tools, appropriate discretion to use them, and clear guidance on responsible practice. The present data do not establish that working arrangement causes differences in AI access or use, but they indicate that organisational provision and autonomy should be considered alongside physical work location in future research and organisational AI-governance discussions. Future studies should examine whether organisational AI provision functions primarily as a productivity resource, a coordination resource, or a marker of broader digital maturity.

Finally, the findings, even though initial and exploratory, highlight a potential risk. Although the benefits of increased productivity and autonomy are present in both remote work and collaborative AI use, the risks identified in previous studies run parallel to one another. Organisations may wish to monitor whether intensive AI use, remote work, and reduced collegial contact co-occur with loneliness, alienation, or other well-being risks. In the worst-case scenario, the negative effects may stack on this cohort of the knowledge-intensive workforce. The present study cannot establish these effects, but it identifies a rationale for future longitudinal and mixed-methods research on how such conditions may interact among knowledge workers.

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An Externalist Dispositionalist Theory of Transgender Identity: A Metaphysical Approach

By Bruno dos Santos Queiroz*

This paper defends an externalist dispositionalist theory of transgender identity within the metaphysics of gender. According to this theory, transgender identity occurs when there is a dissonance between biological sex, understood as primary and secondary sexual characteristics, and gender, conceived as a set of relatively stable dispositions objectively identifiable through their external expression. Gender, like sexual orientation, appears to have a neurobiological basis, shaped in part by prenatal hormones influencing fetal neural development. While gender and sex formation is multifactorial, current scientific evidence highlights intrauterine neurodevelopment as a key determinant of both gender identity and sexual orientation. This paper distinguishes gender identity from sexual orientation and gender expression, situating them within a dispositionalist externalist framework. Three main arguments are presented: neurobiological, psychological-dispositional, and enactivist-ontological. Objections from queer constructivism, performativity theory, phenomenology, and biological reductionism are discussed and addressed. The paper concludes that gender is an objectively real, dispositional, and relational phenomenon that emerges from the interaction between biology, psychology, and the environment, supporting a nuanced understanding of transgender identity.

Keywords: Transgender Identity; Gender Metaphysics; Dispositionalism; Externalism; Gender Identity.

Introduction

The aim of this paper is to defend an externalist dispositionalist theory of transgender identity within the metaphysics of gender. This theory maintains that transgender identity arises when there is a dissonance between biological sex, conceived as primary and secondary sexual characteristic, and gender, conceived as a set of relatively stable psychological dispositions that are objectively identifiable through their external expression. This paper utilizes the term 'transgender identity' to refer to a strictly metaphysical, non-pathologizing psychophysical condition, prioritizing contemporary terminology while maintaining a focus on objective dispositional structures.

Gender, much like sexual orientation, appears to have a neurobiological basis, particularly shaped by prenatal hormonal influences on fetal neural development. While the emergence of both gender and sex is multifactorial, current empirical evidence indicates that intrauterine neurodevelopment constitutes a primary determinant for the formation of gender identity and sexual orientation.

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Despite the growing scholarly attention to gender, conceptual errors remain common in public and academic discussions. Sexual orientation is often mischaracterized as a mere “tendency” or “inclination” (Roberts, 2022), an account that is contradicted by phenomenological experience, which reveals sexual orientation as constitutive of personal identity. Similarly, transgender identity is frequently reduced to a subjective feeling or a personal preference (Roberts, 2016), overlooking its stable, natural, and constitutive nature.

This paper argues for a clear distinction among three core components of human identity: sexual orientation, gender expression, and gender identity, each with specific ontological and psychological features, as well as systematic interrelations. To classify transgender identity as a 'feeling' or 'preference' is a metaphysical category error. Just as it is incorrect to call a physical property like 'solubility' a 'feeling' of the substance, it is incorrect to call a constitutive psychophysical disposition a 'subjective state'.

Contemporary philosophical inquiry seeks non-essentialist frameworks to account for the full spectrum of lived experience while addressing political and social implications (Daves, 2021). A significant challenge in this field involves articulating the relationship between biological reality and social understanding (Wallerstein, 2022). Historically, definitions of gender were based on visible anatomical features, though modern perspectives acknowledge that gender identity may not align with the sex assigned at birth (Horniczak, 2024).

This study situates itself within an interdisciplinary, it emphasizes that a robust account of transgender identity must be built upon three integrated argumentative axes: (i) the *Neurobiological Axis*, which identifies the intrauterine and hormonal bedrocks of identity (Swaab et al., 2022); (ii) the *Psychological-Dispositional Axis*, which frames identity as an intrinsic, stable power rather than a transient state (O’Laocha, 2024); (iii) the *Enactivist-Ontological Axis*, which accounts for the embodied and relational “givenness” of the self (Daves, 2021).

Roadmap

The objective of this paper is to defend the externalist dispositionalist framework as a robust account of transgender identity. The investigation follows a clearly structured logic. *Section: Methodology* establishes the methodological framework through a systematic taxonomical analysis of the research corpus from 2021 to 2025. It justifies the selection of contemporary texts as primary data for mapping the current philosophical “pressure points” that necessitate a new theoretical approach.

Section: Discussion constitutes the core theoretical engagement and is organized into five movements. In *Basic Definitions*, essential terminology is clarified to prevent categorical errors and establish the conceptual pillars of the study. In *Hypothesis*, the central thesis is introduced framing gender identity as an objective psychophysical reality. *Problems with Other Approaches*, systematically outlines the philosophical shortcomings of rival positions, including Internalism, Fictionalism, and other forms of Non-Dispositionalist Externalism. In *A Proposed*

Solution, the preceding arguments are synthesized to present the positive case for Externalist Dispositionalism. *Defensive Synthesis*, solidifies the argument by anticipating and responding to objections from queer constructivism, performativity theory, phenomenology, and biological reductionism. Finally, *Section: Conclusion and Outlook* summarizes the findings and discusses the broader implications of the externalist dispositionalist framework for future research in gender studies.

Methodology

This paper adopts a theoretical-analytical methodology aimed at defending an externalist dispositionalist theory of transgender identity. While engaging with contemporary literature, the review functions instrumentally, providing both empirical and conceptual support for the arguments rather than constituting the primary focus. The objective is to construct a coherent and rigorously structured defense of the thesis, integrating insights from neurobiology, psychology, philosophy of gender, and related disciplines.

The methodology of this study is grounded in a systematic taxonomical analysis of current philosophical discourse. The research corpus is comprised of a targeted selection of academic monographs and peer-reviewed articles published between 2021 and 2025. This specific timeframe was chosen to capture the most recent 'externalist turn' in gender philosophy. The method involves identifying recurring ontological themes and categorizing them according to their foundational premises. By treating these texts as a primary data set, the study moves beyond a descriptive literature review to provide a rigorous mapping of the theoretical 'pressure points' that necessitate an externalist dispositionalist approach.

These sources were chosen for their relevance to key aspects of gender identity, sexual orientation, and the neurobiological and dispositional bases of gender expression. The preliminary bibliography was refined through inspectional reading (Adler & Van Doren, 2010), identifying works that most directly contribute to the development of the theoretical framework. Detailed notes and summaries were produced for these texts, emphasizing arguments, definitions, and evidence that illuminate the structure and stability of transgender identity.

The analytical reading followed the three-stage approach outlined by Adler and Van Doren (2010). In the first stage, each work was surveyed to identify central questions, thematic structures, and conceptual problems addressed by the author. The second stage involved interpreting the ideas in light of the thesis, extracting relevant propositions, key arguments, and empirical evidence. The third stage consisted of critical evaluation, assessing points of agreement and disagreement between authors, as well as gaps, limitations, or inconsistencies in the literature.

A syntopic reading was also conducted to integrate these works into a cohesive argument. This involved establishing common terminology, formulating guiding questions for the thesis, and mapping areas of convergence and divergence within the literature. Such integration allows the literature to function as an instrumental tool, supporting the theoretical defense rather than determining the research outcomes. Following the reading, interpretation, critical judgment, and

syntopic articulation, the materials were compiled in the form of summaries, which serve as the foundational basis for drafting the discussion.

In constructing the thesis of this paper, arguments were selected to support the hypothesis to be defended (that gender can be correctly explained according to an externalist dispositionalist approach), while also addressing potential objections. The presentation of arguments adheres to the rules outlined by Weston (1996), which involve distinguishing premises from conclusions, using clear, precise, and unbiased language, and avoiding logical fallacies.

In addition to logical rigor, the writing of this paper prioritizes coherence, clarity, conciseness, and precision. Coherence ensures that the text is intelligible and free of confusing or obscure phrasing. Clarity ensures that ideas are communicated accurately and accessibly, avoiding ambiguity, vagueness, or indeterminacy. Conciseness organizes information objectively and efficiently, while precision involves distinguishing between what must be explicitly stated for clarity and what can be reasonably inferred from what is already presented (Martinich, 2002).

This paper aligns with the concerns of analytic philosophy, emphasizing careful analysis of theses and positions. A primary methodological concern is the clear definition of concepts, which is addressed in the first part through the establishment of a taxonomy that will be used throughout the text. Even if readers disagree with certain definitions or classificatory choices, explicitly stating how terms are used prevents confusion and reduces disputes arising from semantic differences rather than substantive disagreement.

The syntopic reading process was particularly crucial for reconciling the 'biophysiological variance' found in neuroscience with the 'dispositional stability' required for a metaphysical theory of identity. By mapping areas of convergence, such as the enactivist understanding of the mind, I was able to construct a framework where neurobiological data does not dictate identity but serves as a constitutive element of a broader psychophysical disposition. This methodological approach ensures that the resulting theory is not a mere hybrid of existing views, but a distinct, analytically rigorous defense of externalist dispositionalism.

Discussion

Basic Definitions

It is common in discussions of sex and gender to commit categorical errors, which occur when a phenomenon is incorrectly classified, thereby obscuring its ontological depth. For instance, some have described sexual orientation as a mere "tendency" or "inclination" (Roberts, 2022). However, phenomenological evidence from the analyzed corpus demonstrates that this characterization is inaccurate. As Bettcher (2014) argues that gender identity is experienced not as a transient whim but as a constitutive dimension of the self that shapes desires, social relationships, and daily decisions. It means that identity should be understood as an intrinsic cluster of properties defining the subject's relational architecture, remaining a stable potentiality even when not actively manifested in behavior.

First-person accounts reflect this embeddedness, aligning with the dispositionalist and causal perspective associated with Anjum (2023), where identity functions as a stable psychophysical structure rather than a superficial tendency. Empirical and systematic reviews, such as those by Frigerio, Ballerini, and Valdés Hernández (2021), further demonstrate that these orientations are grounded in durable structural and functional brain differences. Even authors who challenge certain gender ideologies, such as Stock (2021), acknowledge the "givenness" and reality of these orientations as grounded structures. Accordingly, categorizing these identities as mere "inclinations" constitutes a categorical error that overlooks both lived experience and the robust evidence provided by the contemporary researchers cited in this study.

Similarly, traditionalists often speak of transgender identity as if it were a subjective feeling (Roberts, 2016). They say, "No one is a woman just because they feel like one." This is incorrect: gender is not a feeling. Gender is a natural, constitutive, and relatively unchangeable identity of a person's way of being. Again, this is attested not only by the phenomenological experience of transgender people but also by the first-person phenomenological experience of all cisgender people regarding their own gender.

To provide phenomenological evidence to the contrary, one may look to the experience of 'structural friction' described in trans philosophy (Bettcher, 2014; Daves, 2021). Unlike a mere inclination, which suggests a transient desire, the 'givenness' of gender identity manifests as a durable psychophysical bedrock. For instance, just as a native language remains a stable cognitive disposition even when the subject is silent (O'Laocha, 2024), gender identity persists as an objective reality that precedes and resists social performance.

Therefore, we can distinguish two constitutive elements of any person's identity: (i) *their sexual orientation*: related to the psychological dispositions a person has regarding whether their sexual attraction is connected to a particular gender expression. (ii) *their gender identity*: the fact that a person naturally possesses, as part of their dispositional psychological constitution, the identity of "man," "woman," or, if they do not fully fit into either of these two identities, "non-binary."

Sexual orientations are more connected to gender expression than to gender identity. Gender expression refers to the gender a person appears to be when presenting themselves, generally interpreted objectively by observers. Dissonance can exist between gender expression and gender identity, not only among transgender people but also among cisgender people, for example, when a cis man is mistaken for a woman because he has long hair.

Sexual orientations are as follows: (i) *heterosexuality*: when the individual's sexual attraction is exclusively or almost exclusively toward individuals with a gender expression opposite to their gender identity; (ii) *homosexuality*: when the individual's sexual attraction is exclusively or almost exclusively toward individuals with a gender expression matching their gender identity; (iii) *bisexuality/pansexuality*: when the individual's sexual attraction is not exclusive to a specific gender expression; (iv) *asexuality*: when a person does not feel sexual attraction or only experiences it in romantic contexts (*demisexuality*).

Gender expressions, in turn, are threefold: (i) masculine; (ii) feminine; (iii) androgynous. Likewise, gender identities, as mentioned, are also threefold: (i)

man; (ii) woman; (iii) non-binary. Biological sex can also be categorized in three ways: (i) male; (ii) female; (iii) intersex. The natural diversity of human sexuality allows for a wide variety of combinations among these categories. There is no natural norm dictating that biological sex, gender identity, sexual orientation, and gender expression must align. Furthermore, no combination of these types is more “normal” or “pathological”; rather, they are normal expressions of the natural diversity of human sexuality.

To explain the breadth of human sexual and gender diversity, various competing theses have been proposed. I offer the following taxonomy to categorize these positions. This taxonomy was developed in light of the selection of texts published between 2021 and 2025, representing the most recent shift in the philosophical landscape.

(1)Internalism: Gender is primarily an internal reality, centered on consciousness, experience, and subjective self-perception.

(1.1) *Simple Internalism:* Gender is defined by a person’s actual psychological state of self-identification (cf. Eickers, 2025; Horniczak, 2024).

(1.2) *Ideal Internalism:* Gender is defined by the psychological state of self-identification a person would have under ideal conditions of self-knowledge, coherence, and complete information (cf. Daves, 2021).

(2)Externalism: Gender is ontologically dependent on external factors not reducible to a person’s self-consciousness, whether biological, normative, social, or dispositional.

(2.1) *Genetic-biological externalism:* Gender is identical to biological sex, determined by genetic or gonadal characteristics (cf. Stock, 2021).

(2.2) *Neurobiological externalism:* Gender is determined by brain configuration and neuroendocrine patterns, not by genitals or chromosomes (cf. Swaab et al., 2021; Swaab et al., 2022; Frigerio et al., 2021; Watson, 2022).

(2.3) *Naturalistic family-resemblance externalism:* Gender is a natural category not distinct from disjunctive-type sex, constituted by a chain of partial similarities among biological, hormonal, anatomical, behavioral, and psychological properties (cf. Carter, 2022).

(2.4) *Normative externalism:* Gender is the social role a person must perform according to their biological sex, defined by moral norms (cf. Miki, 2022).

(2.5) *Social externalism:* Gender is a socially constructed reality, constituted by practices, institutions, and norms structuring public recognition of someone as a man, woman, or another gender (cf. Stumpp, 2024).

(2.6) *Dispositionalist externalism:* Gender consists of a set of relatively stable psychological dispositions, with a neurobiological basis and observable behavioral expression (cf. O’Laocha, 2024).

(3)Fictionalism: Gender is not a real property but a symbolic or linguistic construction without objective ontological correspondence.

(3.1) *Performative fictionalism:* Gender is a performativity characterized by the stylized repetition of acts producing the appearance of a gender essence (cf. Stock, 2021).

(3.2) *Eliminativist fictionalism*: Gender does not exist as an ontological category and should be abolished as a descriptive concept of human reality (cf. Gheaus, 2023)

It is interesting to note that those who follow positions (2.2) and (2.3) believe that the gender of a truly transgender person is the gender with which they correctly identify; that is, a trans woman is biologically a trans woman, or the biological sex of a trans woman is female. Curiously, positions (2.1), (2.2), (2.3), and (3.1) deny the distinction between sex and gender, either by considering both a biological reality and both a fiction.

Hypothesis

The central hypothesis of this research is grounded in the externalist dispositionalist perspective (2.6). While this framework utilizes the concept of "psychological dispositions," it remains distinct from internalist subjectivism for two primary reasons. First, these dispositions are not understood as inaccessible mental states, but as structures that can be objectively identified through their manifestation in the subject's life-world. Second, this model adopts an enactivist understanding of the mind, viewing cognition as "extended" and relational rather than "private" or "internal." Therefore, I define gender identity as a relational cluster of dispositional properties. To provide a concrete example: just as 'fragility' is a dispositional property of glass that manifests only when struck, gender identity is a stable psychophysical structure that manifests through the organism's interaction with the social environment. It is not a hidden 'feeling,' but a latent orientation that becomes visible through conduct.

Under this enactivist conception, transgender identity is defined as an extended process: the specific, recursive manner in which an organism interacts with its social and physical environment. Consequently, the "truth" of gender is not located within a "private internal theater" of the mind; rather, it emerges from the relational coherence between brain, mind, and conduct. Furthermore, I contend that position (2.3), provided it maintains a rigorous sex/gender distinction, remains conceptually compatible with the externalist dispositionalism defended here.

Transgender identity is, in my view, a stable, natural, and constitutive psychophysical dispositional structure. It is not a subjective state of self-identification, but an objective way of being-in-the-world where the individual's neurobiological and psychological dispositions align with a gender category different from their sex assigned at birth. Because gender is dispositional rather than emotional, it possesses predictive constancy. It manifests as a set of relatively stable behavioral and relational patterns that are objectively identifiable to outside observers, much like other natural psychological dispositions such as personality or sexual orientation.

While position (2.3) provides a valuable non-binary framework through its 'cluster' approach to natural categories, it risks over-emphasizing anatomical fluidity at the expense of identity stability. By situating these naturalistic clusters within an externalist dispositionalist framework (2.6), we can view the various biological and behavioral traits not merely as a checklist for 'participation' in a

gender, but as the objective, observable manifestations of a persistent psychophysical disposition. In this sense, a trans woman does not 'become' more of a woman as she acquires more feminine cluster-traits; rather, her stable dispositional identity is what renders those traits and her engagement with them ontologically intelligible.

Problems with other approaches

After establishing the externalist dispositionalist framework, this section evaluates rival theories to show why they fail to account for the objective givenness of gender identity. The discussion proceeds through three cases: (i) Internalism, which reduces identity to a private mental state and struggles to explain the durable character of the self; (ii) Fictionalism, which treats gender categories as useful fictions and overlooks their material and neurobiological substrates; and (iii) Non-Dispositionalist Externalism, which acknowledges social reality but lacks a metaphysics of dispositionality,

(i) The Problems of Internalism

Internalism, as formulated in contemporary literature, maintains that gender is, above all, an internal reality rooted in consciousness, subjective experience, and the individual's reflective self-perception (Horniczak, 2024). In its simplest formulation, so-called *Simple Internalism*, gender is defined by the subject's actual psychological state of self-identification, that is, by how they recognize and understand themselves (Horniczak, 2024). This perspective conceives gender identity as the deeply felt internal experience each person possesses, which may or may not coincide with the sex assigned at birth (Coleman et al., 2022). In this view, identity is understood as a conscious mental construction that provides the subject with a sense of biographical continuity and narrative coherence (Lemma, 2023).

The defense of internalism rests fundamentally on the principle of First-Person Authority (FPA), according to which each individual holds an epistemic privilege over his or her own gender identity (Eickers, 2025). Following this line, authors such as Talia Mae Bettcher (2014) argue that self-declaration should be treated as the best and ultimate indicator of belonging to a gender category, functioning as a normative criterion of identification for the individual (Horniczak, 2024). The strength of this authority is twofold: ethical-political, because it safeguards the person's autonomy and privacy, and epistemic, because it recognizes that the subject has privileged access to their own mental states (Horniczak, 2024). Thus, when communicating aspects of their mental life, including their gender identity, the person publicly claims a primary authority that validates their self-definition as adequate for social circulation (Eickers, 2025).

Moreover, internalism finds methodological support in phenomenology, whose emphasis on lived experience offers a starting point that epistemically legitimates subjective reports (Daves, 2021). From this perspective, transgender experiences and identities are taken as valid from the outset, without the need for external mediation or verification. Gender identity, thus understood, acquires the status of an "existential identity," expressive of the values, commitments, and reasons for action that the agent deems fundamental (Mullin, 2025). Decisional autonomy, central both to ethics and to contemporary political claims, seems to

reinforce the internalist conception, allowing self-declaration to suffice on its own without requiring external validation (Horniczak, 2024).

However, despite its ethical and subjective robustness, Simple Internalism faces significant philosophical criticisms. The first points to its circular structure: by defining identity solely in reference to subjective states, the theory fails to provide substantive informational content (Horniczak, 2024). To claim that being a man is identifying as a man does not clarify what “being a man” means; it merely shifts the problem.

A second objection arises from the tension between epistemology and metaphysics. Knowing a feeling does not amount to knowing a gender identity, since subjective states can be mistaken, irrational, or unrepresentative of the ontological reality they purport to express (Watson, 2022). Thus, even first-person testimony would not be epistemically decisive if it implies robust metaphysical claims about the nature of gender (Watson, 2022).

To expand on the nature of these dispositions, we must distinguish them from mere 'propositional attitudes' or 'transient moods.' Within an externalist framework, a gender disposition functions as a robust psychological 'habit of being' that organizes the subject's cognitive and affective life. This structure is not 'hidden' in a private theater of the mind; rather, it becomes visible through its consistent expression in the world. By framing gender as a stable dispositional state, we account for the ontological depth reported in trans experiences while maintaining an objective criterion for identification that moves beyond simple, unmediated self-declaration.

Added to this is the contextualist critique, according to which the intelligibility of identities is always intersubjective and situated. Although FPA prioritizes self-declaration, such authority operates within specific normative and linguistic frameworks, meaning that the very interpretation of self-definition must remain coherent with the context in which it is formulated. Historically, internalism also preserves problematic remnants of the so-called “wrong-body model,” which presupposes a fixed and dominant meaning of “sex” and thereby reproduces norms it intended to subvert. This model contributes to processes of *reality enforcement*, through which trans people are treated as deceptive when their gender presentation contradicts the supposed “bodily reality” (Daves, 2021). Such logic not only sustains forms of transphobia but also creates internal hierarchies, as when individuals who have undergone gender-affirming surgeries claim a more “authentic” identity than those who have not.

In clinical contexts, internalism further produces a double-bind problem. Relying on subjective reports for diagnosis and access to medical care may pressure trans individuals to tailor their narratives to professional expectations, risking being deemed fraudulent if they describe experiences considered atypical (Daves, 2021). Finally, an exclusive dependence on subjective self-determination fails to account for cases involving persons with severe cognitive limitations, who lack an articulated self-perception but nonetheless require social recognition and classification (Barnes, 2022).

In light of these criticisms, some authors defend an *ideal internalism*, which seeks to overcome such limitations by asserting that the relevant self-identification is the one formed under ideal conditions of procedural rationality and adequate access to information. However, this reformulation remains insufficient. From an informational standpoint, to say that “being a man is identifying as a man under

ideal conditions of rationality and information” still fails to provide substantive content to the meaning of “being a man.” Moreover, there is a deeper problem: ideal internalism appears self-undermining. If, for a person to be correct in identifying as a man, they must be in appropriate epistemic conditions, this implies that there exists a criterion for what being a man means that is not simply self-identification. Otherwise, it would make no sense to claim that better informational access brings the individual closer to a more accurate understanding of their identity. Thus, in attempting to refine Simple Internalism, Ideal Internalism ends up implicitly acknowledging a parameter external to subjectivity, which, paradoxically, undermines internalism itself.

(ii) The Problems of Fictionalism

The fictionalist approach treats gender as a fiction, either an illusion produced by a stylized repetition of performative acts (performative fictionalism) or a category that ought to be eliminated altogether (eliminativist fictionalism). Performative fictionalism, rooted in Judith Butler’s theory of gender performativity, argues that the stylized repetition of acts creates the appearance of a gender essence, though this essence is merely an imitation without an origin. While this approach aims to expose the artificiality of gender constructions, performance is still judged according to its cultural intelligibility. This demand for coherence imposes a fundamental limit on the subject: if a performance is deemed “unthinkable,” it is excluded from recognition. For transgender subjects, this criterion can be oppressive, as it implies something close to the idea that “passing” is a prerequisite for being trans and for obtaining recognition.

The idea that gender is related to a stylized repetition of performative acts appears to conflate gender identity with gender expression. A person’s manner of acting concerns the behavioral dimension through which they express their gender identity, and cannot be confused with gender identity itself. Furthermore, the rejection of substantial ontology seems to be a radical background assumption of performative fictionalism, which appears to fall into a reductionism that collapses the human being into their behaviors, akin to behaviorist or Sartrean approaches. This view seems incompatible with the notion that every action is the action of a being; philosophically, it is unintelligible to speak of an act without speaking of the agent who performs it.

Eliminativist fictionalism, in turn, suggests that gender concepts should be abolished. While it seeks to free individuals from restrictive gender roles, this view introduces philosophical and practical problems concerning political effectiveness and the reality of subjective experience. If gender concepts were abolished, it would become unclear how feminism could meaningfully do justice to the way transgender people understand their own gender identities. The concept of gender identity, even if fictional or constructed, is often necessary to explain why misgendering constitutes serious harm and why institutions sometimes require identity declarations (Gheaus, 2023). Because identity is an objective psychophysical reality, misgendering is not just a social slight but a failure to recognize a person’s ontological reality.

Some have suggested replacing gender with terms such as “sexual dysphoria” or “aspirational gender roles,” but this approach risks reducing trans *gendered* experience to trans *sexual* experience, failing to explain trans people who are comfortable with their sexed bodies and do not wish to modify them (Gheaus, 2023). Moreover, many

trans individuals maintain that their self-understanding is not merely a superficial cultural product but reflects a deep ontological reality of who they are (Watson, 2022). In this way, fictionalism seems to contradict the substantiality of the phenomenological first-person experience transgender people have of themselves.

Furthermore, gender is so fundamental that perceiving others as “women” or “men” is practically unavoidable (Gheaus, 2023). Gender functions as a metaphysical unifier of our social identities (Miki, 2022); purging it from perception would be nearly impossible. There is also the “concern of desirability”: without some criterion for who counts as a woman, the feminist movement risks losing coherence (Gheaus, 2023).

Trans-exclusionary theorists such as Kathleen Stock (2021), who adopt a form of eliminativist fictionalism when they claim that internal identity is a “fiction,” use this to argue that refusing to affirm someone’s identity is not hateful; they frame the refusal to use a preferred pronoun as a matter of individual autonomy or conscience. However, this ignores the “severe harms” that result from refusing to respect someone’s gender identity. Non-affirmation of gender identity has been linked to significant psychological harms, such as anxiety and depression, showing that refusing to engage with the “fiction” has devastating real-world consequences (Mulch, 2023).

(iii) The Problems of Non-Dispositionalist Externalism

Non-Dispositionalist Externalism encompasses theories that define gender based on objective external factors, whether biological, normative, or social, without primarily grounding it in neuropsychological dispositions (O’Laocha, 2024). This perspective ranges from classical forms of essentialism to naturalistic cluster models, normative role theories, and some social-constructionist approaches (Stumpp, 2024). A central critique of these extreme formulations is that they tend to be philosophically mono-causal, prioritizing a single explanatory factor, whether biological or social, and failing to capture the complexity inherent in human sex and gender experiences (O’Laocha, 2024). Naturalistic family-resemblance externalism represents an exception to this limitation, as it considers individuals across a set of diverse factors, albeit with some biological emphasis.

Genetic-biological externalism holds that gender is identical to biological sex, determined exclusively by binary and immutable properties, such as chromosomal composition or gonadal structure. However, this model lacks nuance and is contradicted by biological reality, as it fails to account for the diversity of ways in which individuals can be born with varied combinations of sex determinants. An example of this complexity is individuals with Complete Androgen Insensitivity Syndrome (CAIS), who possess XY chromosomes but identify and live as women (Stock, 2021). By imposing an inflexible binary model, this essentialist approach oversimplifies scientific reality and exposes individuals to significant social and psychological harm, relying on biological conceptions that are now scientifically outdated (O’Laocha, 2024).

Similarly, neurobiological externalism attempts to ground gender identity in objective patterns of the brain and the neuroendocrine system (Swaab et al., 2021; Frigerio et al., 2021; Watson, 2022). Although preliminary research suggests neurobiological differences associated with gender identity, current scientific

knowledge allows for correlation but not causation (Horniczak, 2024). It remains uncertain whether these brain differences are the cause of gender identity or the result of hormonal interventions, rendering the explanation insufficient to establish an objective and universal definition of gender.

Normative externalism, in contrast, conceives gender as a prescriptive social role derived from biological sex and regulated by moral norms (Miki, 2022). Conservatives who acknowledge the distinction between sex and gender but view transgender identity as a moral problem adopt this perspective, for instance. According to this view, male individuals should perform the gender “man” and female individuals the gender “woman” so that any deviation, as in the case of transgender people, would be morally wrong. This approach falls into the common ethical fallacy of attempting to derive moral prescriptions from natural states. It also relies on *sui generis* gender norms that classify individuals into only two gender roles based on perceived sexual characteristics without providing rational justification independent of religious or metaphysical beliefs (Gheaus, 2023). Beyond being epistemologically problematic, this approach perpetuates inequality and restricts individuals’ freedom to develop their abilities and pursue a full life, compromising the safety and opportunities of both women and men (Ryan, 2025).

Social externalism, on the other hand, posits that gender is a socially constructed reality defined entirely by the practices, institutions, and norms that structure public recognition (Stumpp, 2024). However, this conception ignores the significance of the body and neglects experiences of gender dysphoria, in which individuals experience intense distress regarding their biological conditions (O’Laoha, 2024). By externalizing internal suffering as a problem of social perception, the model fails to provide an adequate foundation for addressing bioethical issues related to medical interventions. Furthermore, by reducing gender to a social construct, absurd consequences may arise, such as the possibility that a person’s gender could change according to societal or geographic context (Espinosa, 2024).

Finally, externalism based on naturalistic cluster models defines sex and gender as natural categories constituted by chains of partial similarities among biological, anatomical, and psychological characteristics (cf. Carter, 2022). Inspired by Wittgensteinian approaches, this model allows a person to participate more or less in a given sex or gender depending on how many cluster characteristics they possess. Hormonal and anatomical transformations can increase or decrease participation in a given gender over time. Despite offering greater flexibility, this model faces two main difficulties: it does not fully capture the intuition that biological sex and gender are distinct, nor the intuition that gender tends to be relatively fixed and stable. On the other hand, this approach is not entirely incompatible with dispositionalist externalism and can, in fact, be incorporated within it.

A Proposed Solution: Externalist Dispositionalist Theory

The central thesis of this paper is that gender identity is not a monolithic internal state, but a multidimensional construct emerging at the intersection of these three axes:

- (i) *The Neurobiological Axis*: This represents the physiological and neurological substrates that provide the "material potential" for identity.
- (ii) *The Psychology-Dispositional Axis*: As the core of the dispositionalist approach, identity is understood here as a set of dispositions that manifest under specific conditions, rather than a fleeting or purely subjective "feeling."
- (iii) *The Ontological-Enactivist Axis*: Drawing from enactivism, this axis posits that identity is "brought forth" or enacted through the subject's interaction with their environment.

I begin with the idea that there is a real distinction between sex and gender, while maintaining that these two instances influence each other, especially considering that sex evolves over the species' evolutionary process and gender has a neurobiological basis. Therefore, the distinction between biological sex and gender identity is the starting point. Sex corresponds to biological characteristics, chromosomes, genitals, hormones, and secondary sexual characteristics, while gender refers to the set of psychological, behavioral, and relational dispositions that structure the way a subject engages with the world. Thus, a trans woman is not a "man who feels like a woman," but a person whose dispositional system, both psychological and neurobiological, aligns with the female gender.

Regarding the *neurobiological axis*, the neurobiological literature on gender identity provides substantial evidence of correlations between brain structure and gender identity, while also expressing caution regarding claims of causation and the notion of rigidly "male" or "female" brains. Research indicates that aspects of the hypothalamus and other neuroendocrine structures exhibit patterns associated with gender identity, supporting the externalist view that gender has an objective basis in the configuration of the brain and body (O'Laocha, 2024; Horniczak, 2024; Swaab et al., 2021; Frigerio et al., 2021). Case studies further suggest that gender identity can be innate and stable, exemplified by individuals whose internal sense of gender conflicts with the sex assigned at birth, indicating the existence of a physical basis, such as a genetic or neurobiological predisposition, for knowing one's own gender (Watson, 2022; Daves, 2021).

Moreover, prenatal development and intrauterine hormonal factors appear to play a significant role in shaping gender identity, providing a relatively stable foundation that goes beyond mere subjective perception or social construction (Horniczak, 2024; Pilgrim, 2021). The multifactorial perspective rejects monocausal and simplistic explanations, recognizing that gender identity results from the complex interaction among chromosomes, internal and external genitalia, hormones, secondary sexual characteristics, as well as social and cultural factors (O'Laocha, 2024; Daves, 2021). This approach allows for understanding that an individual's experience of gender can simultaneously involve biological and social elements, consistent with the lived experience of transgender individuals who integrate both internal feelings and social norms and expectations in the construction of their identity (Daves, 2021).

However, I do not commit to the thesis that there is such a thing as a "male brain" or "female brain." My perspective on the mind rejects cerebrality (the thesis that the mind's basis is only the brain) and adopts an enactivist extended notion of

the mind. Moreover, I do not believe that gender can be reduced simply to brain states, nor that the neurobiological basis is the sole determinant of gender. Gender is determined in a complex multifactorial manner that prevents simplistic talk of a “male brain” or “female brain”. Gender is thus not 'located' in a 'male' or 'female' brain; it is an emergent, relational way of being-in-the-world that integrates biological variance with psychological and social interaction.

My second point of argument is the *psychological-dispositional axis*. From a psychological point of view, gender identity manifests as a set of stable dispositions that organize subjective experience and practical conduct. These dispositions include ways of perceiving the body, expressing oneself, behaving, and relating socially. While internalized and subjectively experienced, they are objectively identifiable, meaning they can be recognized intersubjectively from the coherence and persistence of patterns of behavior and self-expression.

Gender identity, therefore, is not an ephemeral feeling (“today I feel like a man, tomorrow a woman”) but a continuous dispositional structure defining the person’s way of being. Thus, gender is psychological but not subjectivist; it is dispositional and embodied. This aligns with: (i) our intuitions that gender is not something someone merely “feels” they are; (ii) the phenomenological experience, both cis and trans, of gender as an inherent, natural, and relatively unchangeable psychological identity; (iii) the recognition that truly transsexual people exist in the world whose gender does not correspond to their biological sex.

My third point is the *ontological-enactivist axis*. From an ontological perspective, dispositionist externalism rejects both psychological internalism and reductionist biologicism. Under an enactivist conception, the mind is not a private, isolated entity but an extended and embodied process: the way the organism interacts with the world, expressing itself bodily and socially.

From this perspective, gender is neither a mental idea nor a mere social convention but a form of psychophysical organization of human experience, a specific way of inhabiting the body and the world. Gender dispositions are real because they are actualized in observable practices, emotions, and behaviors that express coherence among brain, mind, and conduct. Therefore, gender is ontologically relational and objectively real, emerging from the articulation between body (biology), mind (psychology), and environment (expression and social interaction). This position avoids both biological reductionism, which confuses gender with sex, and performative subjectivism, which dissolves it into mere language or fiction.

If the set of dispositions that constitutes gender is understood as objective and stable, my view is compatible with a form of Aristotelian essentialism regarding gender. Aristotelian essentialist perspectives maintain that certain core characteristics essences define the nature of entities and unify their observable properties. Applied to gender, this approach suggests that gender functions as an essential trait that organizes and gives coherence to the social identity of individuals. In other words, gender is not merely a superficial label or a collection of external roles, but a central dimension that constitutes the social agent one is; without it, an individual cannot fully exist as a coherent member of society (Miki, 2022).

My view has also some advantages over other views. In the literature, extreme positions of crude biological essentialism and crude social constructivism are often

seen as philosophically limited and practically harmful (O’Laocha, 2024). I share this view. Phenomenological approaches offer an alternative: they suggest that gender and sex should be understood as aspects of a person’s contextual identity. For instance, Maurice Merleau-Ponty’s concept of the sexual schema emphasizes the body’s intrinsic ambiguity, which allows for a non-essentialist understanding of sexuality. This framework can help make sense of the diverse experiences of trans people, highlighting the legitimacy of identities that do not fit into strict binary categories (Daves, 2021).

Empirical research also supports non-binary perspectives. The Multidimensional Variance Paradigm (MVP) model of sex highlights bio-physiological variation among individuals (Ellis & Reilly-Dixon, 2024). Evidence from cross-sex hormone therapy shows that the human endocrine system is plastic, challenging the idea that sex is fixed at birth (Ellis & Reilly-Dixon, 2024). Further, biological sex involves multiple factors beyond genital anatomy, such as neuroendocrine patterns, indicating that sex is never purely binary (Cooke, 2022). Dispositionalist accounts of gender consider this complexity, particularly in cases involving intersex traits or Gender Dysphoria, emphasizing the human and contextual aspects of gender (Anjum, 2023).

Answers for Possible Criticism or Questions from other Approaches

Below, I respond to some objections that could be raised from different perspectives against my view:

(1) **Queer Constructivist Objection:** Gender cannot be understood as a natural or neuropsychological fact because social practices, languages, and recognition norms constitute it. Gender identity, according to this line (Butler, Haslanger, Ásta), is inseparable from the symbolic and institutional structures that make it intelligible. Therefore, saying that gender is a “psychophysical disposition” ignores the constitutive role of culture and power in shaping modes of feeling and self-perception as male or female.

Response: The dispositionalist position does not deny that gender is socially recognized, nor that social factors are among those that determine gender. Our psychological dispositions are in reciprocal constitutive correlation with social factors, and this is not ignored in my perspective.

(2) **Performativity Objection:** Judith Butler’s queer theory shows that gender is a performativity, i.e., a set of repeated acts producing the appearance of a gender essence. Thus, what externalist dispositionalism calls the “dispositional core” is, in fact, an appearance resulting from reiterated performativity of action and language.

Response: Reducing gender to mere performativity does not do justice to its ontological reality. Performativity correctly describes how gender is expressed but not its ontological origin. Performative acts express preexisting dispositions: they are manifestations of the psychophysical structure constituting gender identity. Therefore, dispositionalism can incorporate performativity as a phenomenological level of expression without reducing gender to performance. Thus, performativity theory is correct if conceived as a theory of expression, not of gender identity.

(3) **Phenomenological Objection:** A phenomenological perspective (Prosser, Salamon) would assert that gender is a structure of being-in-the-world (Heidegger),

and reducing it to observable or neurobiological dispositions eliminates the existential aspect of trans identity, the embodied “being-in-the-world.”

Response: Externalist dispositionalism is compatible with phenomenology, provided an enactivist understanding of the mind is adopted: dispositions are not hidden brain entities but modes of engagement with the world manifested in experience. Recognizing gender as dispositional does not deny its phenomenological lived experience but grounds it in a psychophysical structure explaining its stability and coherence over time. Therefore, a phenomenological-existential theory of gender can be compatible, depending on its formulation, with my view.

(4) **Self-Knowledge Objection:** Dispositionalist theory might seem to undermine a trans person’s self-understanding: if gender is something that can be externally and objectively identified, not merely felt, then self-declaration loses legitimacy.

Response: Dispositionalism does not replace self-identification but ontologically justifies it. That dispositions can be objectively identified does not imply independence from consciousness, but that they are real both in first- and third-person perspectives. Thus, self-declaration is valid because it expresses a real dispositional state, which can also be analyzed neuropsychologically. *Prima facie*, we should accept a person’s self-declared gender. My theory, however, allows explaining that people can misidentify their own gender or whether they are transsexual. Therefore, although, my theory allows for the possibility of misidentification, it strongly supports self-declaration as the most reliable first-person evidence of an underlying stable disposition.

(5) **Biologist Objection:** Reducing gender to psychological and cerebral dispositions is incoherent, since the biological aspect is sex, not gender. If gender has a brain basis, it would merely be a dimension of biological sex. Therefore, transsexuality would be a form of dysfunction, not a legitimate gender category. It is argued that a man is an adult human male and a woman is an adult human female, and policies should ultimately reflect these metaphysical truths about biological sex (Stock, 2021; Joyce, 2021)

Response: Dispositionalism rejects the identification of biology with genitality. The relevant biological basis for gender is not genetic code or sexual organs, but the neuroendocrine configuration organizing behavior and identity. Gender, therefore, has a biological basis but is not reducible to anatomical sex. Moreover, my perspective, in admitting that gender determination is multifactorial, does not treat the neurobiological basis deterministically. The idea that transsexuality (or transgender identity) is a biological dysfunction is a legacy of outdated biology, contrary to the best available biological and psychological science.

(6) **Epistemological Objection:** There are no sufficiently clear empirical criteria for identifying gender dispositions. Talking about “stable psychophysical dispositions” seems metaphysical or vague, as neurobiological evidence is correlational, not causal.

Response: All ontological theories in the human sciences work with degrees of dispositional inference (as in theories of personality, emotion, or sexual orientation). The fact that correlations are not universally deterministic does not invalidate the ontological class, it only indicates that gender is a multifactorial probabilistic phenomenon, not a simple essence. Dispositionalism thus assumes moderate realism: there is a complex underlying psychophysical structure, recognizable through behavioral and neuropsychological constancy.

Conclusion and Outlook

Transgender identity, when understood through an externalist dispositionalist framework, emerges as a stable and objective psychophysical reality, rather than a mere subjective feeling or social construct. By integrating neurobiological, psychological-dispositional, and enactivist-ontological perspectives, this approach demonstrates that gender identity is grounded in observable dispositions that are relationally expressed in behavior, cognition, and social interaction. While social, cultural, and normative factors shape the expression and recognition of gender, these factors complement rather than replace the underlying dispositional structure.

Just as a robust understanding of biochemical mechanisms is necessary for interpreting psychedelic experiences, a rigorous analysis of the dispositional and neurobiological bases of gender identity is essential to avoid mischaracterizations and metaphysical errors. Recognizing the objective reality of gender dispositions does not negate personal experience or social recognition; rather, it provides a coherent framework in which subjective experiences, social norms, and neurobiological evidence can be meaningfully integrated.

This perspective encourages interdisciplinary dialogue between philosophy, neuroscience, psychology, and social theory, offering a nuanced and scientifically informed understanding of transgender identity. By situating dispositionalist externalism at the intersection of objective reality and lived experience, we advance both conceptual clarity and practical insight for ethical, social, and medical considerations. Adopting an externalist dispositionalist framework carries significant ethical weight. If transgender identity is an objective psychophysical reality, then social recognition and legal status are not mere matters of courtesy but of ontological justice. Misgendering, in this view, constitutes a serious harm because it denies the stable, natural dispositions that constitute the subject's way of being. Furthermore, while this theory allows for empirical inquiry into the neurobiological basis of gender, it reinforces the First-Person Authority of the individual as the primary epistemic witness to their own stable dispositional states.

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